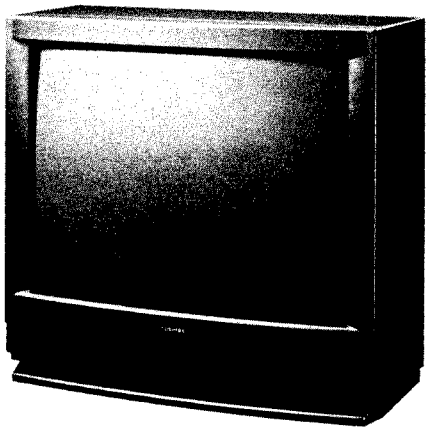
SERVICE DATA
FILE NO. 050-232
NTSC SYSTEM

TOSHIBA

COLOR TELEVISION

CF3254J:CX34549

(TAC8960) (TAC8965)



For service information not described in this manual, see the original service data for CF3078:CX3278C (File No. 050-129).

SPECIFICATIONS

Input Power Rating :	145 watts (average), 120 volts AC, 60 Hz
Antenna Input Impedance :	75 ohm unbalanced type for VHF, UHF and CATV
Receiving Channels :	VHF channels ..... channels 2 to 13 UHF channels ..... channels 14 to 69 CATV channels ..... Mid-band A8 to A1, A to I Super-band J to W Hyper-band AA to ZZ, AAA, BBB Ultra-band 65 to 94, 100 to 125
Intermediate Frequencies :	Picture I-F carrier frequency ..... 45.75 MHz Sound I-F carrier frequency ..... 41.25 MHz Color sub-carrier frequency ..... 42.17 MHz
Picture Tube :	32 inches A80JTS96X01, 481 sq. inches of viewable area, 110° deflection
Audio Output :	7 watts × 2
Speaker :	2-3/4" × 5" (Two-way, one-frame, flat) 2 pcs
Cabinet :	Wood, Table type
Dimensions :	Height ..... 29-29/64 inches Width ..... 31-7/64 inches Depth ..... 22-53/64 inches
Weight :	150 lbs.
Aux. Terminals :	AUDIO/VIDEO INPUT jacks, S-VIDEO INPUT jack, AUDIO OUTPUT (VARIABLE) jacks, Ext. speaker terminals, HEADPHONE jack.
Features :	Frequency synthesized tuning system, 181-channel cable compatible, 42-key remote control (CF3254J), 52 key programmable remote control (CX34549), Multichannel TV Sound reception, On-screen display, Digital control, Programmable scan, Comb filter, 2 RF input, scan modulator, Off timer.

Specifications are subject to change without notice.

Printed in Japan Sep. 1989 (So)

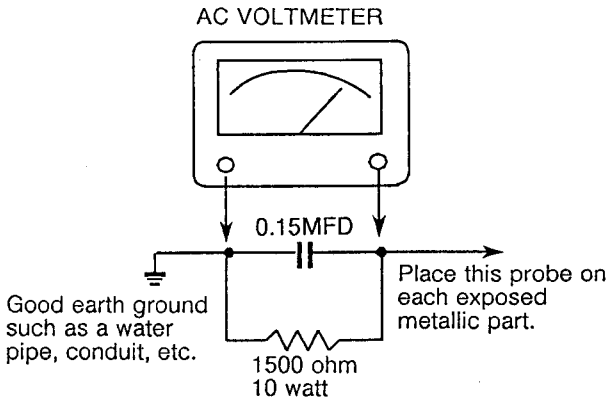
X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 30.3 kV at zero beam current (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed 30.7 kV.
   Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual. It is recommended that the reading of the high voltage be recorded as a part of the service record. It is important to use an accurate and reliable high voltage meter.
2. This receiver is equipped with a Fail Safe (FS) circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, the FS circuit must be checked to determine that the circuit is properly functioning, following the FS CIRCUIT CHECK procedure in this manual.
3. The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
4. Some part in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

SAFETY PRECAUTION

WARNING : Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing this chassis.

1. An isolation Transformer should be connected in the power line between the receiver and the AC line before any service is performed on the receiver.
2. Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatter proof goggles and keep picture tube away from the unprotected body while handling.
3. When replacing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network etc.
4. Before returning the set to the customer, always perform an AC leakage current check on the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock. Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check). Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner: Connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 mfd, AC type capacitor, between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 mfd capacitor. Reverse the AC plug at the AC outlet and repeat AC voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.

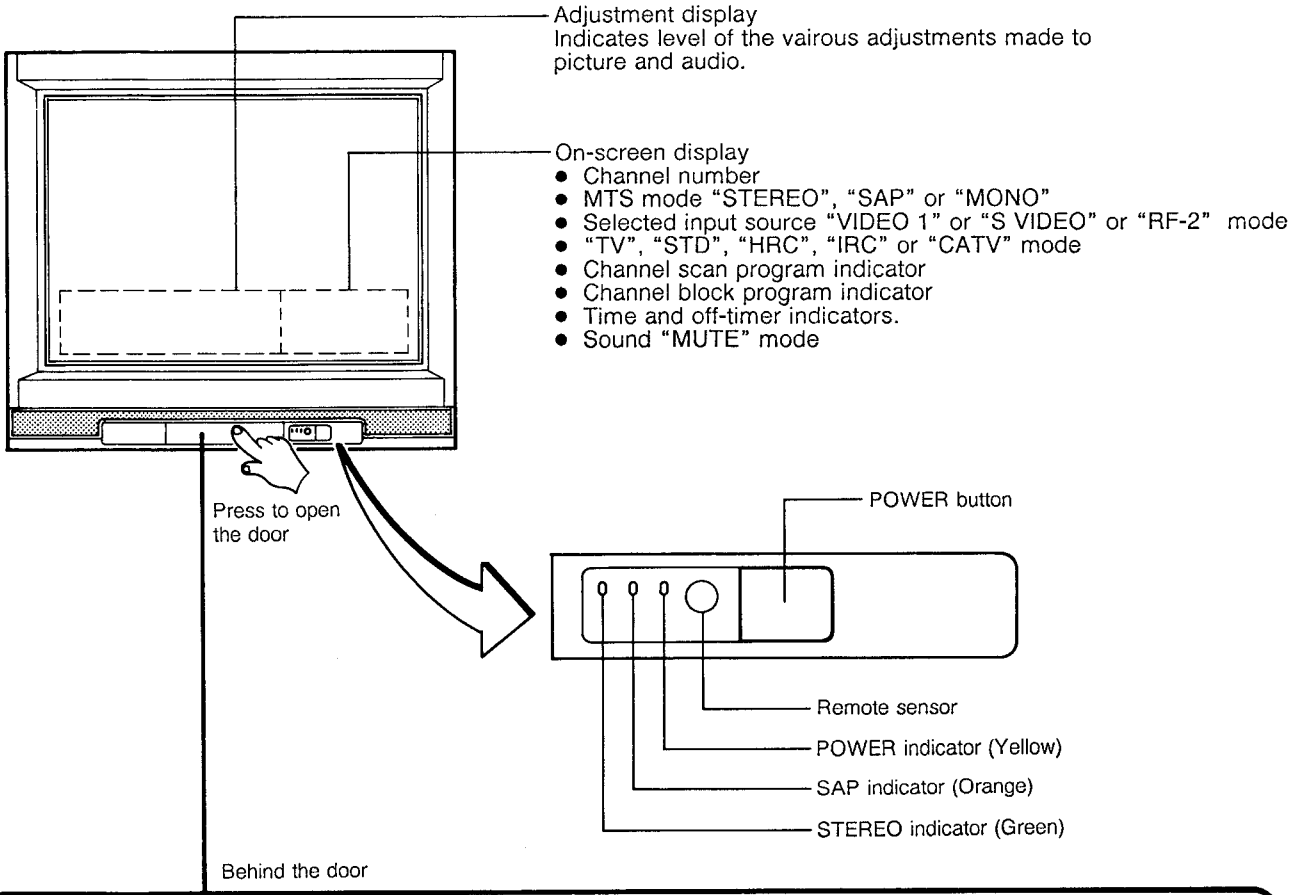

AC VOLTMETER
0.15MFD
Good earth ground such as a water pipe, conduit, etc.
Place this probe on each exposed metallic part.
1500 ohm 10 watt

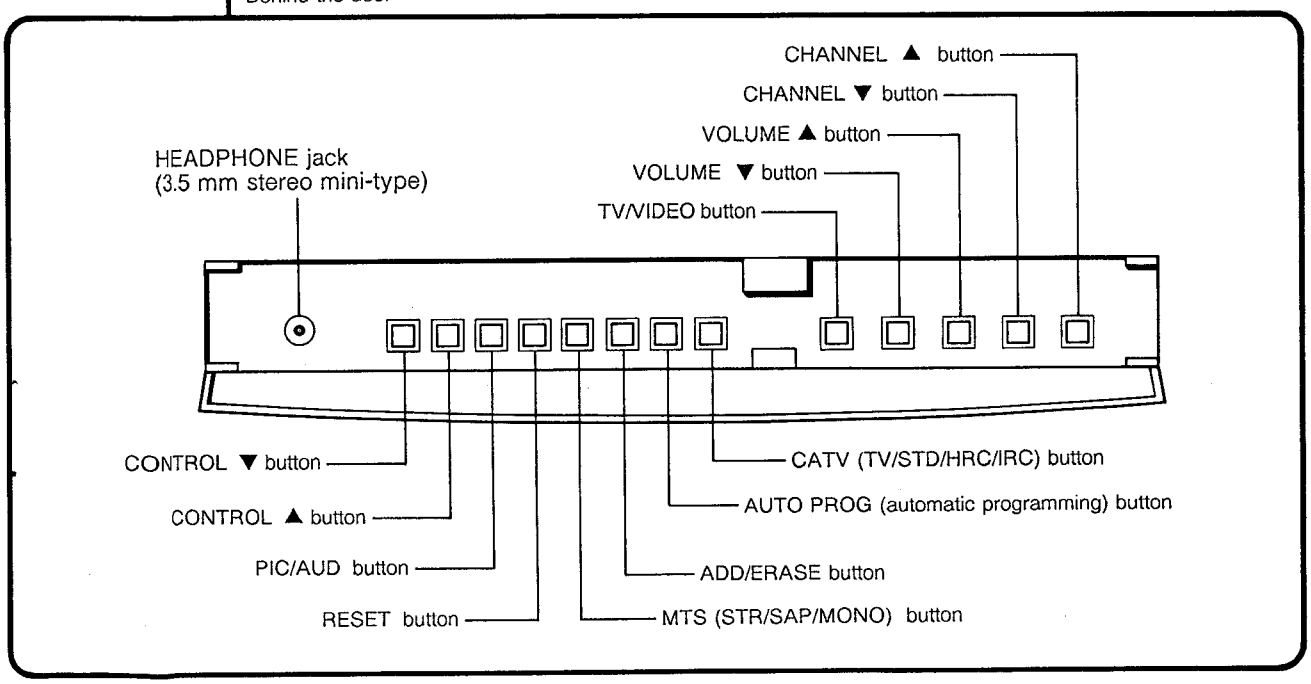
PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the international hazard symbols on the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create shock, fire, X-ray radiation or other hazards.

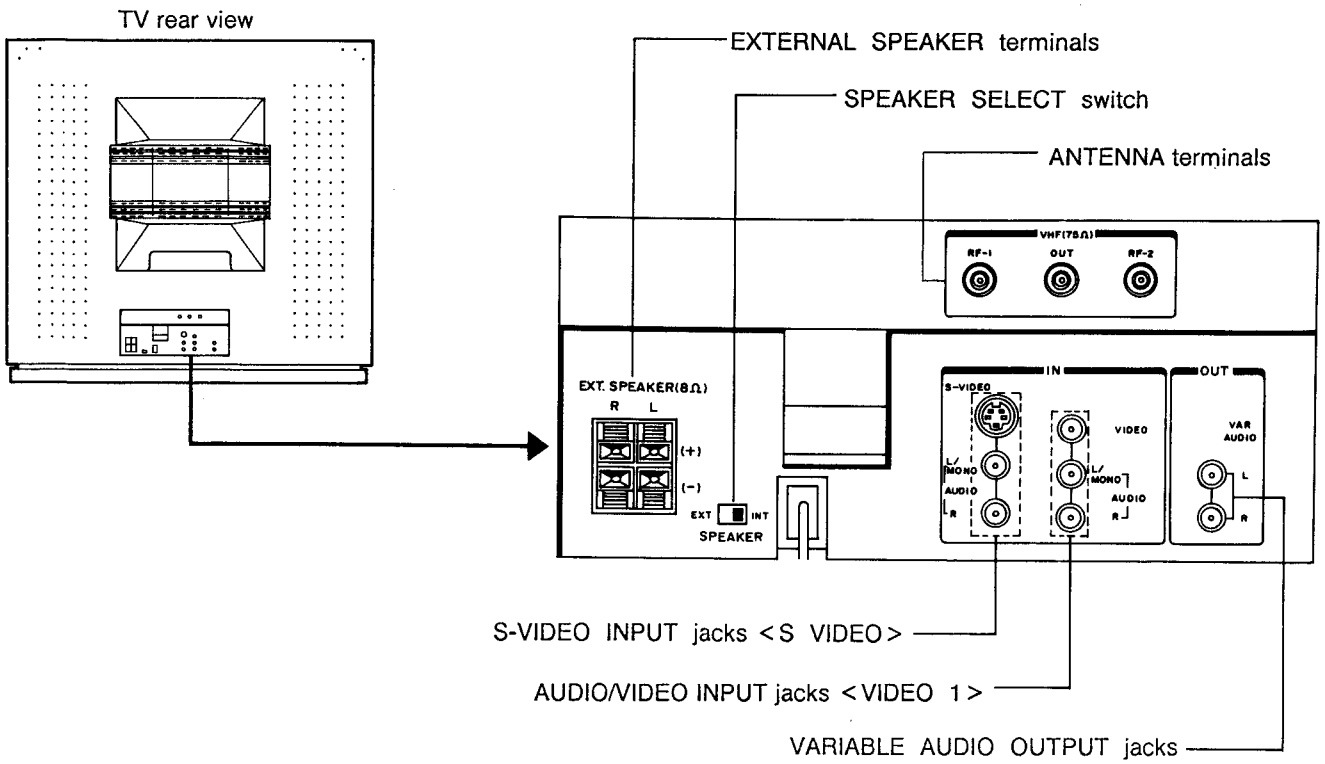
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

FRONT CONTROLS VIEW

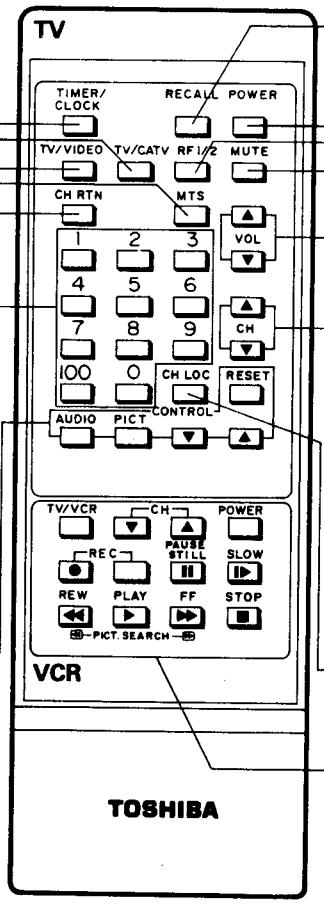

Adjustment display
Indicates level of the vairous adjustments made to picture and audio.
On-screen display
• Channel number
• MTS mode "STEREO", "SAP" or "MONO"
• Selected input source "VIDEO 1" or "S VIDEO" or "RF-2" mode
• "TV", "STD", "HRC", "IRC" or "CATV" mode
• Channel scan program indicator
• Channel block program indicator
• Time and off-timer indicators.
• Sound "MUTE" mode
Press to open the door
POWER button
Remote sensor
POWER indicator (Yellow)
SAP indicator (Orange)
STEREO indicator (Green)
Behind the door



REAR VIEWS



REMOTE CONTROL HAND UNIT (For CF3254J)



TIMER/CLOCK button
Press to set to the clock setting mode or time setting mode.

TV/CATV button
Press to select either the TV or CATV mode.

TV/VIDEO button
Press for playback from the external equipment connected to "VIDEO 1" or "S VIDEO" jacks.

MTS button
Press to select one of the Stereo SAP or Mono mode.

CH RTN button
Press to switch the last channel previously tuned.
Press again to return to the present channel.

CHANNEL NUMBER buttons
Directly select channels you want.

Audio and Picture control buttons

RECALL button
Press to display the time and channel number on the screen.

POWER button
Press to turn the TV set on.
Press again to turn off.

RF 1/2 button
Press to select either the RF-1 or RF-2 mode.

MUTE button
Press to cut off the sound.
Press again to resume normal sound.

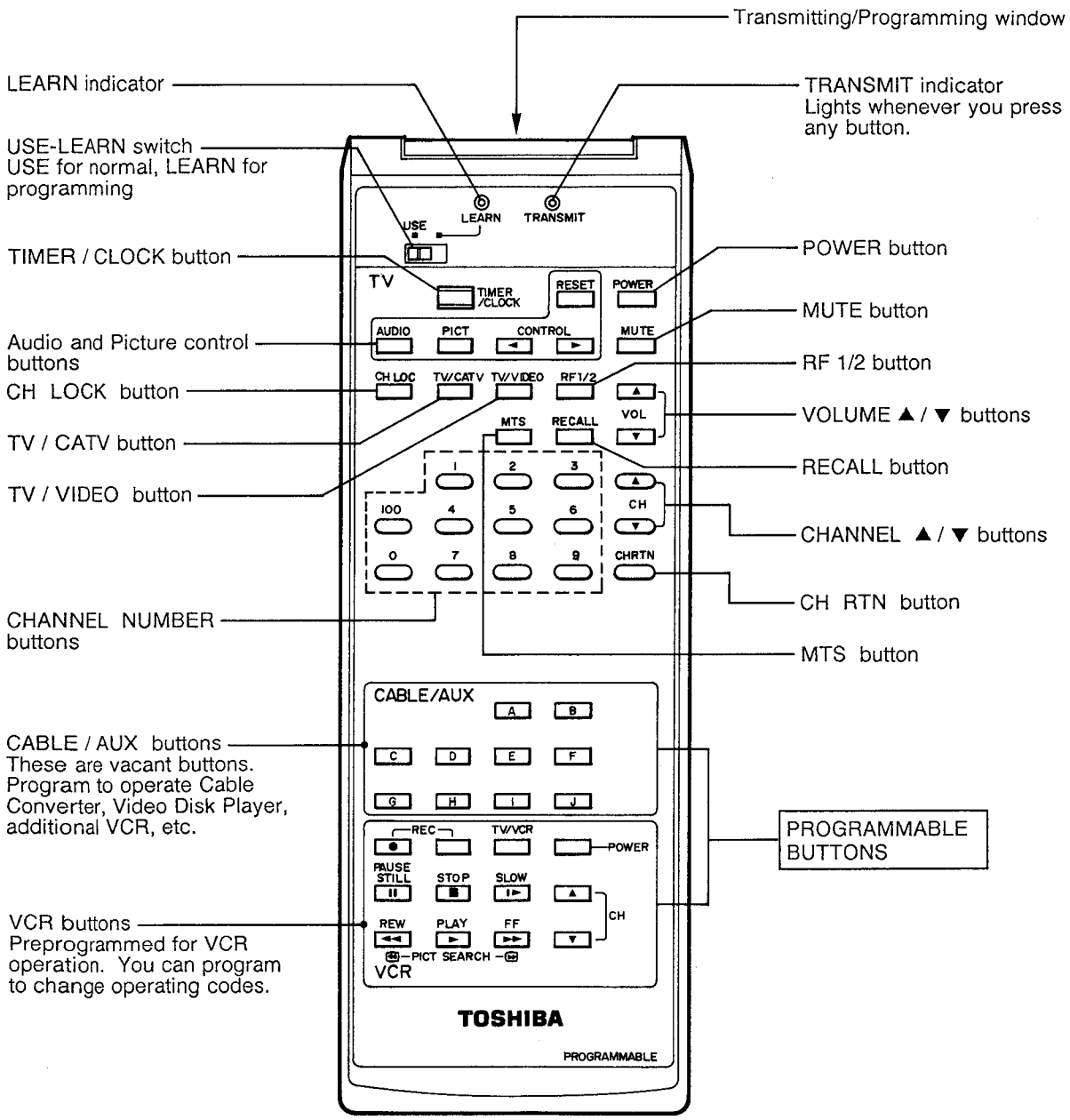
VOLUME UP ▲ / DOWN ▼ buttons
Press UP ▲ button to increase volume.
Press DOWN ▼ button to decrease volum

CHANNEL UP ▲ / DOWN ▼ buttons
Press UP ▲ button to scan up.
Press DOWN ▼ button to scan down.

CH LOC button
Block out any specific channel for parental control.

VCR function buttons

REMOTE CONTROL HAND UNIT (For CX34549)



WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION", "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

SET-UP ADJUSTMENT

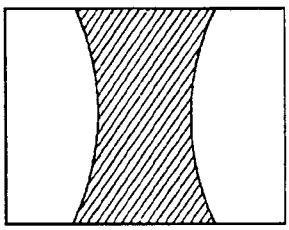
- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
  Perform the adjustments in order as follows :
  1. Color Purity
  2. Convergence
  3. CRT Gray Scale

  Note: The PURITY/CONVERGENCE MAGNET assembly and rubber wedges need mechanical positioning. Refer to figure 1.

COLOR PURITY ADJUSTMENT

NOTE : Before attempting any purity adjustments, the receiver should be operated for at least fifteen minutes.

1. Receive all-white signal with a color bar/pattern generator.
2. Evenly degauss the entire screen.
3. Set the CONTRAST and BRIGHTNESS controls to the maximum.
4. Adjust RED and BLUE BIAS Controls (R956 and R958) to provide only a green raster. Advance the GREEN BIAS control (R957) if necessary.
5. Loosen the clamp screw holding the deflection yoke (and remove the rubber Wedges).
6. Slide the yoke forward or backward to provide vartical green belt (zone) in the picture screen.
7. Rotate and spread the tabs of the purity magnet (See figure 3.) around the neck of the picture tube until the green belt is in the center of the screen. At the same-time, center the raster vertically by adjusting the magnet as shown below.



Green Belt

8. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
9. Check the purity of the red and blue raster by adjusting the BIAS Controls.
10. Put four wedges into the space between the picture tube and the yoke to hold the yoke in the adjusted position. (See figure 2.)
    Do not tilt the yoke by excessive insertion of the wedge.
11. Remove cover paper of wedge and stick wedges on the tube to fix the yoke in the adjusted position. Fix the wedges with glass cloth tapes.

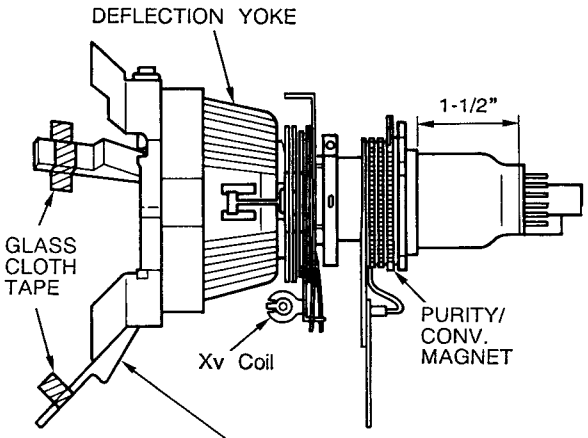


Figure 1.

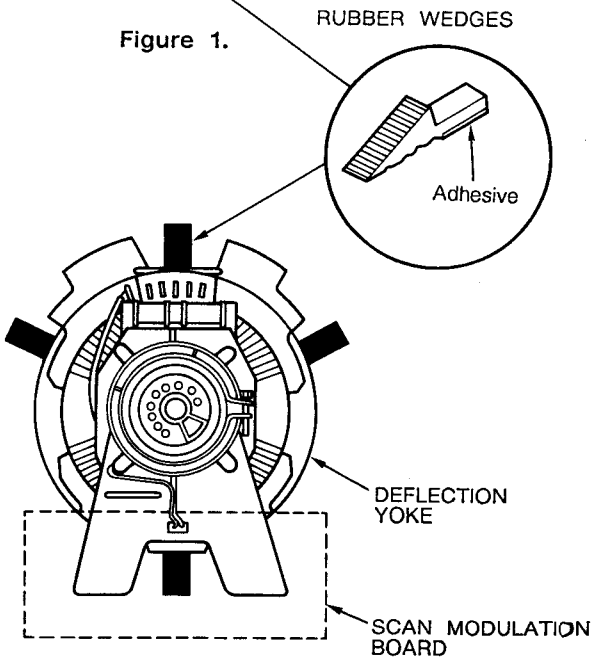
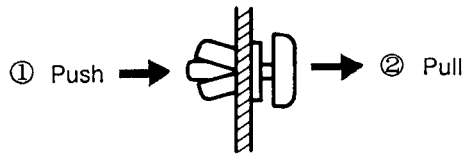
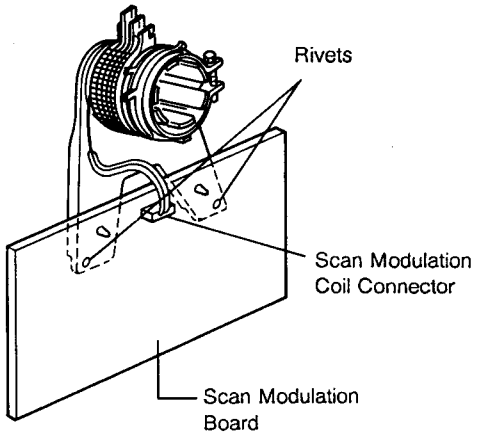


Figure 2.

HOW TO REMOVE THE PURITY/CONV. MAGNET FROM THE SCAN MODULATION BOARD

1. Disconnect the Scam Modulation Coil connector on the SCAN MODULATION Board.
2. Remove 2 rivets as below.





CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least fifteen minutes.

■ CENTER CONVERGENCE ADJUSTMENT

1. Receive crosshatch pattern from a color bar/pattern generator.
2. Adjust the BRIGHTNESS and CONTRAST Controls for well defined pattern.
3. Loosen the tightening ring and adjust two tabs of the 4-Pole Magnets to change the angle between them (See figure 3.) and superimpose red and blue vertical lines in the center area of the picture screen. (See figure 4.)
4. Turn the both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the centre of the screen. (See figure 4.)
5. Adjust two tabs of 6-Pole Magnets to superimpose red/blue line with green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustments 3, 4, 5 keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole magnets interact and make dot movement complex.
7. After completing the "CENTER CONVERGENCE ADJUSTMENT" tighten the tightening ring to fix the magnets.

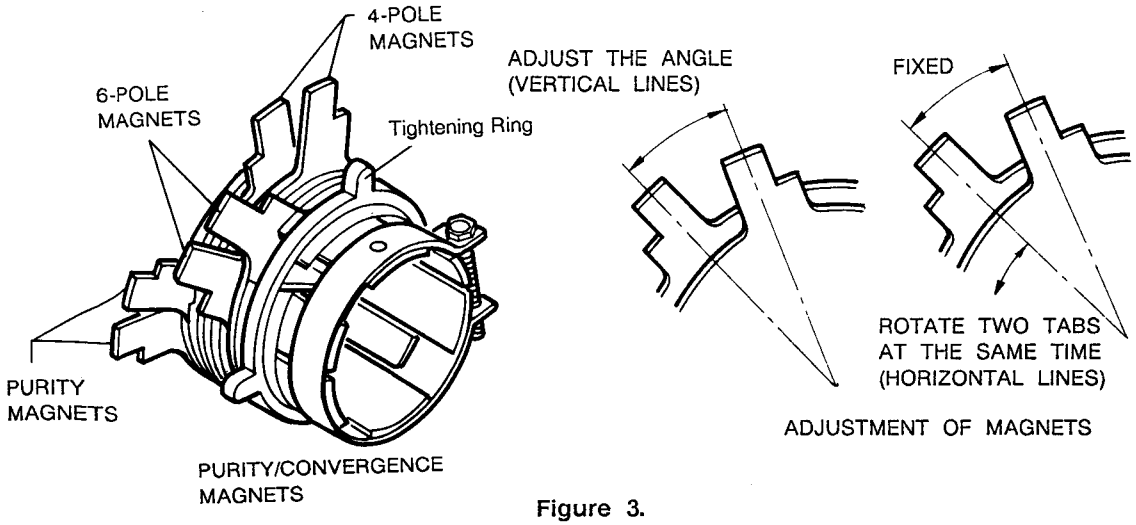
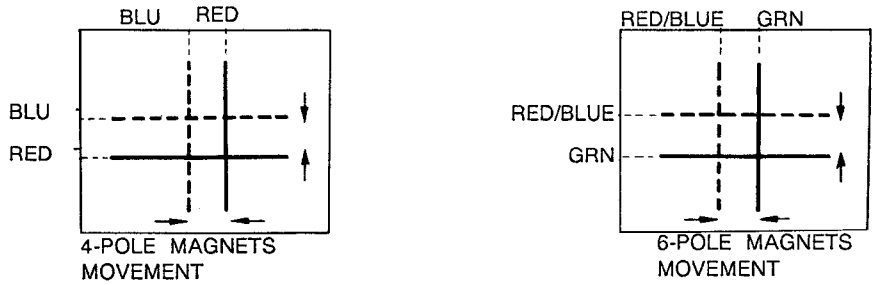


Figure 3.

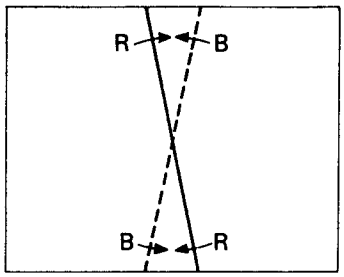
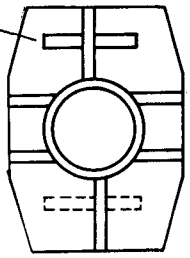
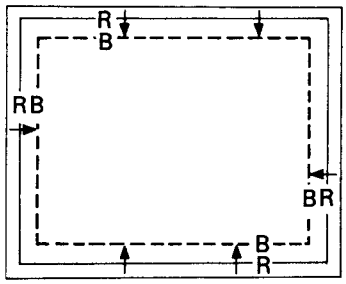
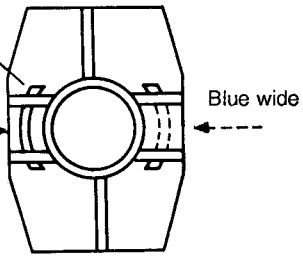


Center Convergence by Convergence Magnets

Figure 4.

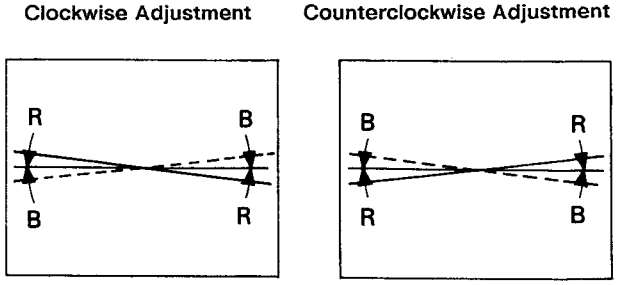
■ CIRCUMFERENCE CONVERGENCE ADJUSTMENT

After completing the "CENTER CONVERGENCE ADJUSTMENT", if the misconvergence is still evident in circumference, compensate a misconvergence with compensators and Xv coil of the yoke.

COMPENSATOR	CONVERGENCE PATTERN	ATTACHING PLACE ON YOKE BACK
Part No. 23199308	Y_H (cross) ① pattern 	Position ① 
Part No. 23199745	Y_V & X_H ① pattern 	Position ① 

■ **Xv COIL ADJUSTMENT**

Adjust the Xv coil (on the deflection yoke) to correct misconvergence at both sides on screen. (See the right figure.)
Use a hexagonal tip stick (plastic) to adjust the core of coil.

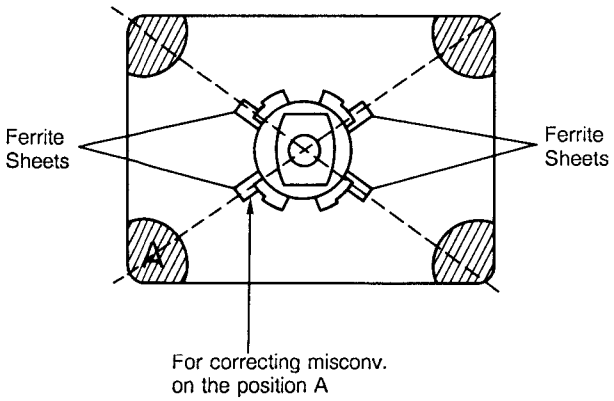


X_V Cross Pattern View

■ SCREEN-CORNER CONVERGENCE

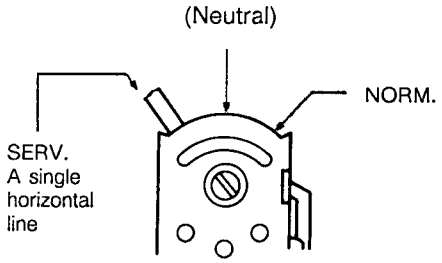
When the misconvergence is still evident on corners even though the above adjustment is done, use the ferrite sheet (Part No. 23993622) to correct misconvergence.

1. Put ferrite sheets into the space under the yoke. Decide such position that misconvergence becomes minimum, watching picture screen. (See figure below.)
2. Remove cover paper of ferrite sheet to stick it in the place on the tube. Put adhesive tapes on ferrite sheets to fix.



CRY GRAY SCALE ADJUSTMENT

1. Tune in an active channel.
2. Set the COLOR Control to minimum.
3. Turn the SCREEN Control (on T461) fully counter-clockwise.
4. Set the SERVICE Switch on the CRT DRIVE Board to "SERV." position (see figure below). The picture will become a single horizontal line.



5. Rotate the RED, GREEN and BLUE BIAS Controls (R956, R957, R958) fully counterclockwise and return them by 45 degrees.
6. Set the GREEN and BLUE DRIVE Controls (R952, R953) to the mid-position.
7. Gradually rotate the SCREEN Control (on T461) clockwise until the first horizontal line appears slightly on the screen, and leave it.
8. Adjust the remaining two BIAS Controls to obtain the slightly lighted horizontal line in the same levels of three (red, green, blue) colors (The line should be white if the BIAS Controls are adjusted properly.)
9. Set the SERVICE Switch to "NORM." position.
10. Set the BRIGHT and CONTRAST Controls to maximum.
11. Adjust the BLUE and GREEN DRIVE Controls to obtain proper white-balanced picture in high light areas.
12. Adjust the BRIGHT and CONTRAST Controls to obtain dark gray raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the BIAS Controls and DRIVE Controls to obtain a good white balance in both low and high light areas.

CIRCUIT ADJUSTMENT

HV REGU BOARD ADJUSTMENT

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis. Checking should be done following the steps below.

1. Connect an accurate high voltage meter to the second anode of the picture tube.
2. Turn on the receiver. Set the BRIGHT and CONTRAST Controls to minimum (zero beam current).
3. High voltage must be measured below 30.7 kV.
4. Rotate the BRIGHT Control to both extremes to be sure the high voltage does not exceed the limit under any conditions.

+115V POWER SUPPLY ADJUSTMENT

CAUTION: This voltage is closely relates to the high voltage. To prevent hazardous X-RAY RADIATION, this voltage must be properly adjusted to +115 volts.

1. Tune in an air signal and press the RESET button.
2. Check that AC power line voltage is normal (120V ac, 60 Hz).
3. Connect a MULTI-METER (DC VOLT range) to Vcc terminal (emitter of Q480) and chassis ground.
4. Adjust +115V ADJ. (R450) for +115 volts reading.

SIDE DPC ADJUSTMENT

1. Receive crosshatch pattern with a color bar generator.
2. Adjust the SIDE PIN control (RD51) for straight line at the right aqnd left sides of the pattern.

WIDTH ADJUSTMENT

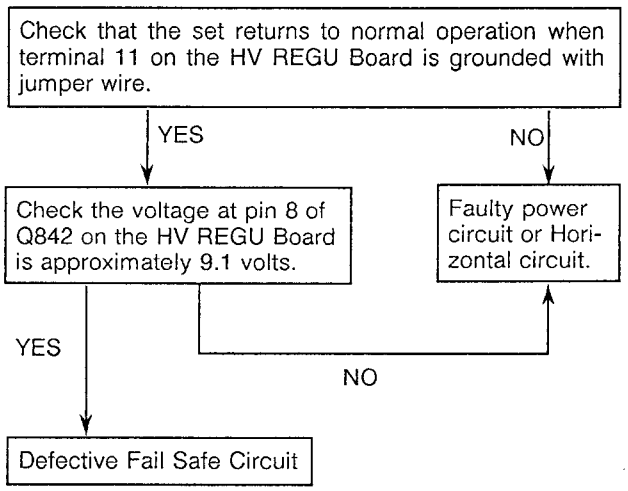
Adjust the WIDTH control (RD50) so the picture width does not lack on right and left sides when BRIGHTNESS control is varied from minimum to maximum.

FS CIRCUIT CHECK

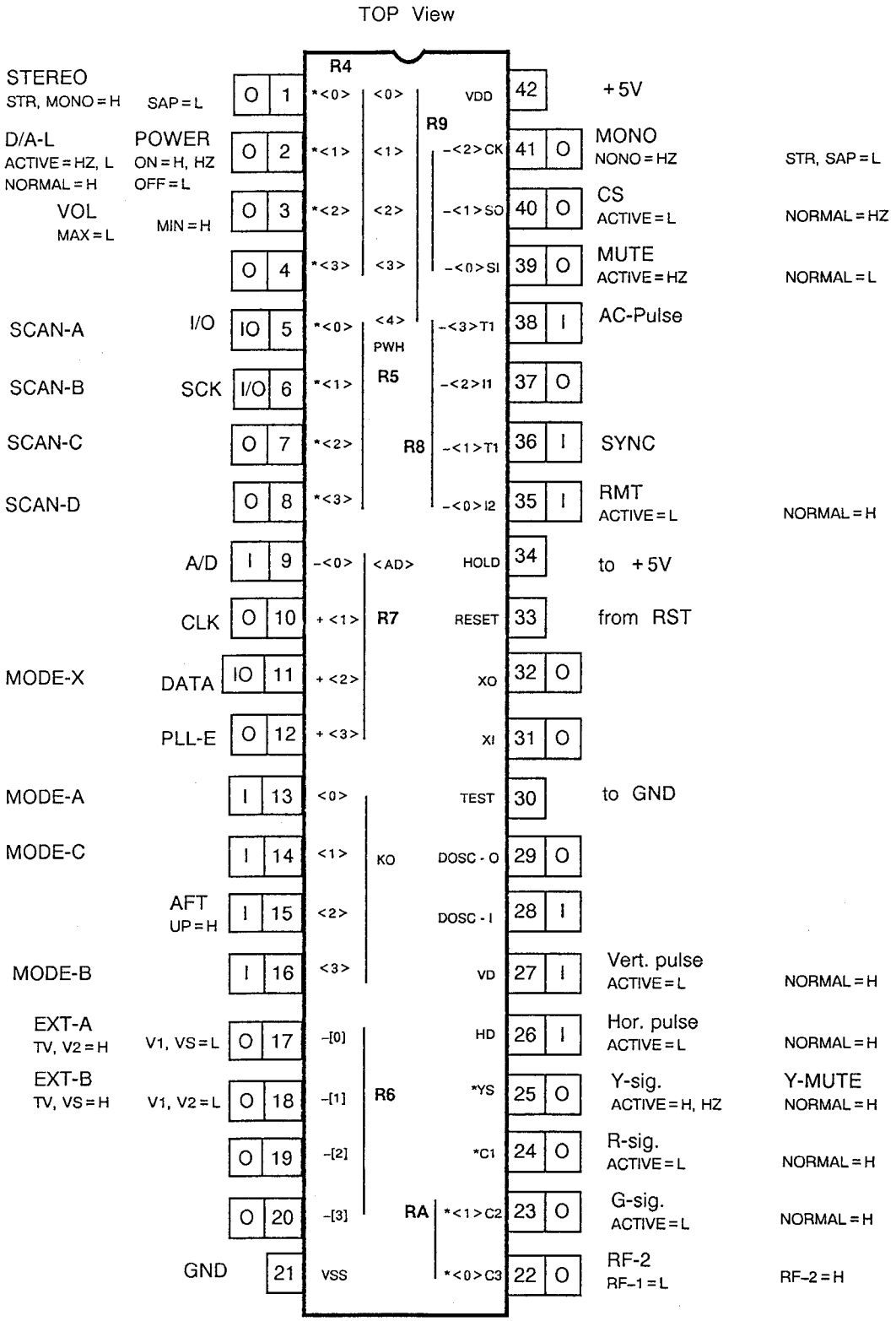
The Fail Safe (FS) circuit check is indispensable for the final check in servicing. Checking should be done following the steps below.

1. Turn the receiver on and press the RESET button.
2. Temporarily short TP-Ⓡ and TP-Ⓧ on the HV REGU Board with a jumper wire.
   Raster and sound will disappear.
3. The receiver must remain in this state even after removing the jumper wire. This is the evidence that the FS circuit is functioning properly.
4. To obtain a picture again, temporarily turn the receiver off and allow the FS circuit more than 5 seconds to reset. Then turn the power switch on to produce a normal picture.

Troubleshooting Guide for Fail Safe Circuit

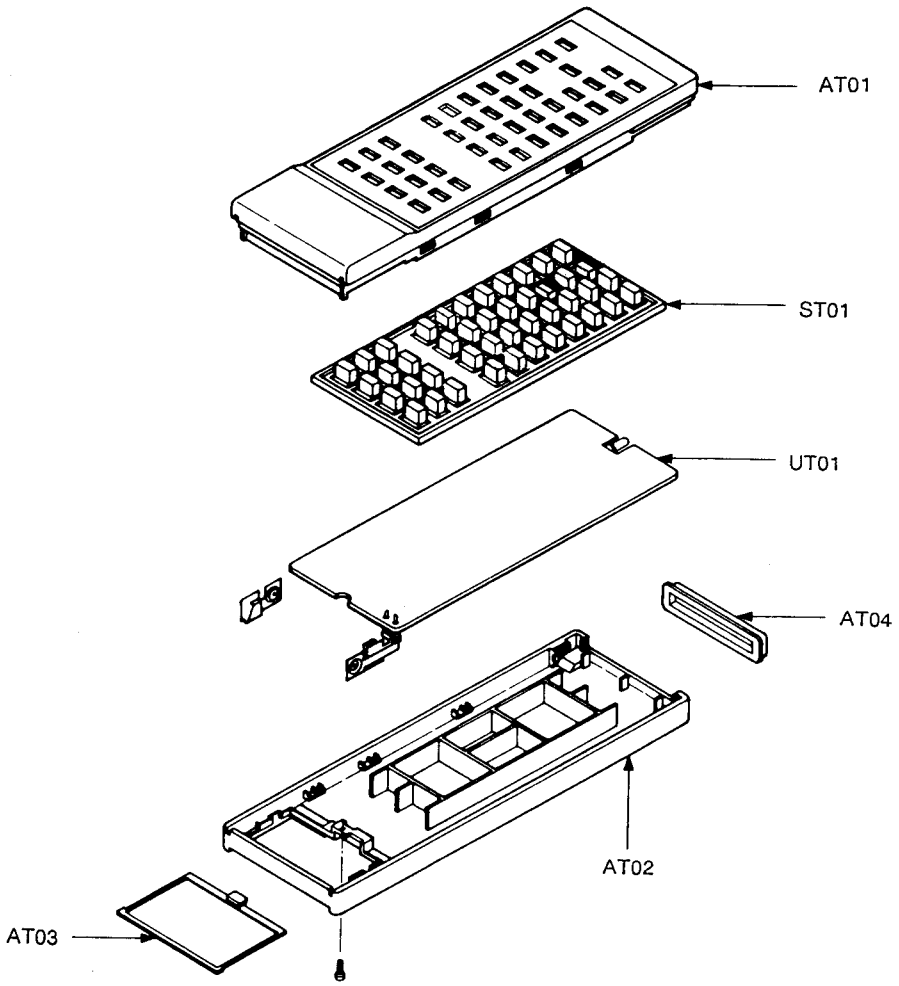

Check that the set returns to normal operation when terminal 11 on the HV REGU Board is grounded with jumper wire.
YES
NO
Check the voltage at pin 8 of Q842 on the HV REGU Board is approximately 9.1 volts.
Faulty power circuit or Horizontal circuit.
YES
NO
Defective Fail Safe Circuit

PIN FUNCTION OF MICROPROCESSOR ICA01 (TMP47C634N2454Z)



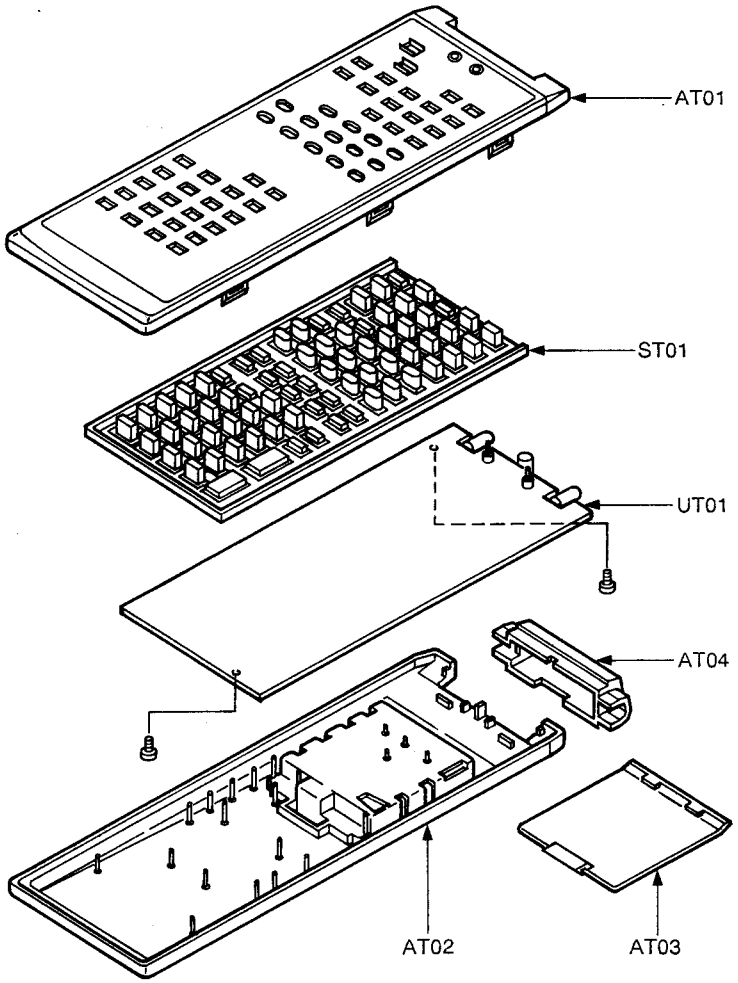
Note:
I : In-port
O : Out-port
– : Open drain (Voltage resistant terminal)
+ : Push-Pull
* : 3-State

TRANSMITTER EXPLODED VIEW AND REPAIR PARTS LIST
(For CF3254J)



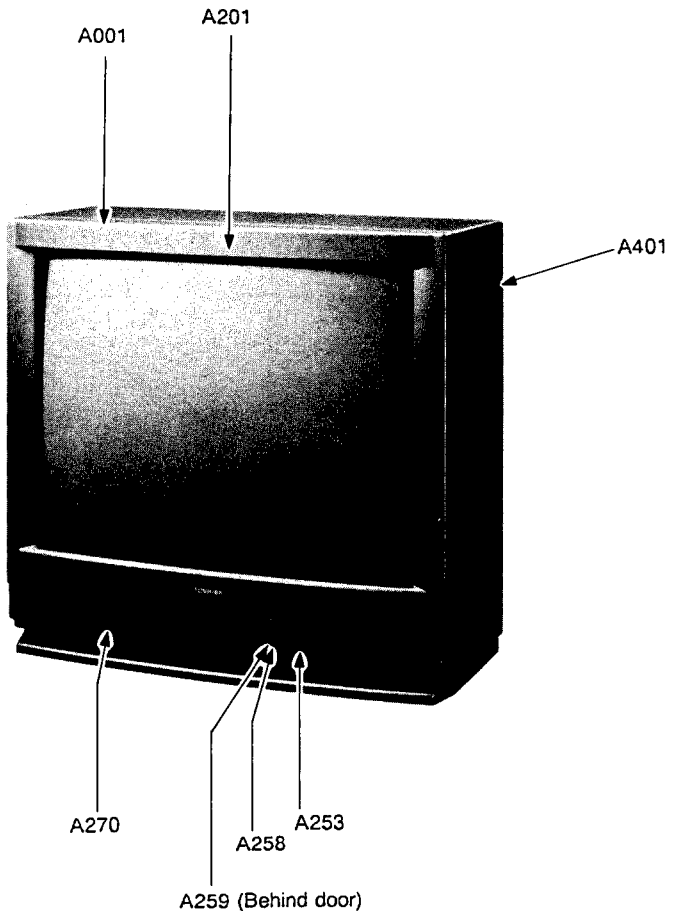
Location No.	Part No.	Description
K912	23120475	Remote Hand Unit, CT-9371
AT01	23300836	Upper Case
AT02	23300759	Lower Case
AT03	23300760	Battery Cover
AT04	23309657	Filter
ST01	23300837	Rubber Sheet
UT01	23334593	PC Board, PW6923
ZT01	23153736	Ceramic Resonator, CSB455EB20

TRANSMITTER EXPLODED VIEW AND REPAIR PARTS LIST
(For CX34549)



Location No.	Part No.	Description
K912	23120592	Remote Hand Unit, CT-9412

CABINET REPLACEMENT PARTS LIST



CF3254J

Location No.	Part No.	Description
A001	23887265	Wood Cabinet
A201	23418293	Front Panel
A213	23845609	Clip
A240	23451204	Push-Catch
A250	70393022	Nut
A253	23443322	Knob, POWER
A258	23443048	Knob, 5-key
A259	23443049	Knob, 8-key
A270	23423158	Door
A401	23423157	Back Board Assy
A402	23822380	Back Board
A403	23448080	Socket Cover
A523	23710992	Screw, 3.5x25mm
A524	23710992	Screw, 3.5x25mm
A701	23523298	Carton Box
A702A	23934222	Packing, Top
A702B	23934223	Packing, Bottom
A901	23989685	Label, Model No., B/C
Y101	23994686	Owner's Manual
Y106	23994678	TESC Sheet
Y107	23142513	Adaptor, Antenna Matching, AD803J
Y134	23998368	Label, Model No., Carton

CX34549

Location No.	Part No.	Description
A001	23887265	Wood Cabinet
A201	23418293	Front Panel
A213	23845609	Clip
A240	23451204	Push-Catch
A250	70393022	Nut
A253	23443322	Knob, POWER
A258	23443048	Knob, 5-key
A259	23443049	Knob, 8-key
A270	23423158	Door
A401	23423157	Back Board Assy
A402	23822380	Back Board
A403	23448080	Socket Cover
A523	23710992	Screw, 3.5x25mm
A524	23710992	Screw, 3.5x25mm
A701	23523298	Carton Box
A702A	23934222	Packing, Top
A702B	23934223	Packing, Bottom
A901	23998192	Label, Model No., B/C
Y101	23994734	Owner's Manual
Y107	23142513	Adaptor, Antenna Matching, AD803J
Y134	23998802	Label, Model No., Carton

CHASSIS REPLACEMENT PARTS LIST

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" , "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION: The international hazard symbols in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

NOTICE: The part number must be used when ordering parts, in order to assist in processing, be sure to include the Model number and Description.

Models CF3254J : CX34549

ABBREVIATIONS:

Capacitors..... CD : Ceramic Disk PF : Plastic Film EL : Electrolytic
Resistors..... CF : Carbon Film CC : Carbon Composition MF : Metal Film
OMF : Oxide Metal Film VR : Variable Resistor FR : Fusible Resistor

(All CD and PF capacitors are ±5%, 50V and all resistors, ±5%, 1/6W unless otherwise noted.)

Location No.	Part No.	Description
CAPACITORS		
C063	24763101	EL, 100μF, ±20%, 16V
C064	24794470	EL, 47μF, 16V
C100	24763101	EL, 100μF, ±20%, 16V
C101	24436390	CD, 39pF
C102	24232103	CD, 0.01μF, +80%, −20%
C104	24203470	EL, 47μF, ±20%, 16V
C106	24232103	CD, 0.01μF, +80%, −20%
C107	24591433	PF, 0.043μF
C108	24591683	PF, 0.068μF
C109	24232103	CD, 0.01μF, +80%, −20%
C113	24206479	EL, 4.7μF, 50V
C114	24206478	EL, 0.47μF, 50V
C115	24206339	EL, 3.3μF, 50V
C116	24232103	CD, 0.01μF, +80%, −20%
C117	24203100	EL, 10μF, ±20%, 16V
C118	24232103	CD, 0.01μF, +80%, −20%
C125	24763101	EL, 100μF, ±20%, 16V
C126	24763101	EL, 100μF, ±20%, 16V
C127	24763221	EL, 220μF, ±20%, 16V
C128	24763101	EL, 100μF, ±20%, 16V
C129	24436221	CD, 220pF
C131	24232103	CD, 0.01μF, +80%, −20%
C132	24232103	CD, 0.01μF, +80%, −20%
C141	24436510	CD, 51pF
C142	24473330	CD, 33pF
C161	24232103	CD, 0.01μF, +80%, −20%
C162	24232103	CD, 0.01μF, +80%, −20%
C163	24232103	CD, 0.01μF, +80%, −20%
C165	24232103	CD, 0.01μF, +80%, −20%
C171	24232103	CD, 0.01μF, +80%, −20%
C172	24436120	CD, 12pF
C175	24591333	PF, 0.033μF
C202	24436820	CD, 82pF
C207	24436430	CD, 43pF
C208	24206010	EL, 1μF, 50V
C209	24636479	EL, 4.7μF, 50V
C210	24206010	EL, 1μF, 50V
C212	24633100	EL, 10μF, 16V
C213	24763221	EL, 220μF, ±20%, 16V
C214	24232103	CD, 0.01μF, +80%, −20%

Location No.	Part No.	Description
C215	24633220	EL, 22μF, 16V
C216	24633100	EL, 10μF, 16V
C222	24203100	EL, 10μF, ±20%, 16V
C223	24232103	CD, 0.01μF, +80%, −20%
C270	24203100	EL, 10μF, ±20%, 16V
C273	24206010	EL, 1μF, 50V
C274	24206479	EL, 4.7μF, 50V
C275	24232102	CD, 1000pF, +80%, −20%
C276	24173101	CD, 100pF, ±10%
C291	24763101	EL, 100μF, ±20%, 16V
C301	24617912	EL, 2.2μF, ±10%, 50V
C302	24436680	CD, 68pF
C303	24214471	CD, 470pF, ±10%, 500V
C304	24592184	PF, 0.18μF, ±10%
C305	24617912	EL, 2.2μF, ±10%, 50V
C306	24630736	EL, 1000μF, 25V
C307	24693683	PF, 0.068μF, 100V
C308	24765221	EL, 220μF, ±20%, 35V
C309	24758100	EL, 10μF, 160V
C310	24765222	EL, 2200μF, ±20%, 35V
C311	24435271	CD, 270pF, 500V
C312	24082053	PF, 0.1μF, 100V
C313	24082057	PF, 0.22μF, 100V
C314	24591333	PF, 0.033μF
C315	24636478	EL, 0.47μF, 50V
C325	24232103	CD, 0.01μF, +80%, −20%
C330	24636100	EL, 10μF, 50V
C331	24591204	PF, 0.2μF
C402	24212222	CD, 2200pF, ±10%
C403	24636339	EL, 3.3μF, 50V
C404	24591203	PF, 0.02μF
C405	24636229	EL, 2.2μF, 50V
C406	24591242	PF, 2400pF
C408	24591163	PF, 0.016μF
C409	24232223	CD, 0.022μF, +80%, −20%
C410	24763471	EL, 470μF, ±20%, 16V
C411	24591432	PF, 4300pF
C412	24591163	PF, 0.016μF
C413	24214332	CD, 3300pF, ±10%, 500V
C416	24677100	EL, 10μF, ±20%, 160V
C417	24214821	CD, 820pF, ±10%, 500V

Location No.	Part No.	Description
C419	24214331	CD, 330pF, ±10%, 500V
C425	24763221	EL, 220μF, ±20%, 16V
C426	24206479	EL, 4.7μF, 50V
C429	24085978	EL, 4.7μF, ±20%, 160V, Non-Polar
⚠ C440	24095889	PF, 9100pF, ±3%, 1600V
⚠ C441	24095913	PF, 1500pF, ±3%, 1600V
⚠ C442	24095827	PF, 0.2μF, 200V
⚠ C443	24095827	PF, 0.2μF, 200V
⚠ C444	24095893	PF, 6200pF, ±3%, 1600V
C445	24833223	PF, 0.022μF, ±10%, 200V
C446	24828303	PF, 0.03μF, 200V
C447	24750330	EL, 33μF, 250V
C448	24640908	EL, 33μF, ±20%, 160V
C449	24764222	EL, 2200μF, ±20%, 25V
C460	24633100	EL, 10μF, 16V
C461	24632470	EL, 47μF, 10V
C463	24212152	CD, 1500pF, ±10%
C464	24082053	PF, 0.1μF, 100V
C480	24633330	EL, 33μF, 16V
C481	24538224	PF, 0.22μF
C482	24591152	PF, 1500pF
C483	24640962	EL, 33μF, ±20%, 200V
C484	24633330	EL, 33μF, 16V
C485	24794101	EL, 100μF, 16V
C486	24232103	CD, 0.01μF, +80%, −20%
C487	24640962	EL, 33μF, ±20%, 200V
C501	24436220	CD, 22pF
C502	24436330	CD, 33pF
C503	24636478	EL, 0.47μF, 50V
C504	24353120	CD, 12pF
C505	24353470	CD, 47pF
C509	24591433	PF, 0.043μF
C510	24085972	EL, 2.2μF, ±20%, 50V, Non-Polar
C511	24232103	CD, 0.01μF, +80%, −20%
C513	24232103	CD, 0.01μF, +80%, −20%
C514	24591683	PF, 0.068μF
C516	24232103	CD, 0.01μF, +80%, −20%
C517	24232103	CD, 0.01μF, +80%, −20%
C580	24436820	CD, 82pF
C601	24232103	CD, 0.01μF, +80%, −20%
C602	24232103	CD, 0.01μF, +80%, −20%
C603	24232103	CD, 0.01μF, +80%, −20%
C604	24232103	CD, 0.01μF, +80%, −20%
C605	24763101	EL, 100μF, ±20%, 16V
C606	24232103	CD, 0.01μF, +80%, −20%
C607	24232103	CD, 0.01μF, +80%, −20%
C608	24436070	CD, 7pF, ±0.25pF
C609	24085970	EL, 10μF, ±20%, 16V, Non-Polar
C610	24436221	CD, 220pF
C640	24765101	EL, 100μF, ±20%, 35V
C641	24667470	EL, 47μF, ±20%, 25V
C642	24636229	EL, 2.2μF, 50V
C643	24636229	EL, 2.2μF, 50V
C644	24667470	EL, 47μF, ±20%, 25V
C645	24667470	EL, 47μF, ±20%, 25V
C646	24765471	EL, 470μF, ±20%, 35V
C647	24591124	PF, 0.12μF
C648	24591124	PF, 0.12μF
C649	24765471	EL, 470μF, ±20%, 35V
C701	24203470	EL, 47μF, ±20%, 16V
C702	24203101	EL, 100μF, ±20%, 16V

Location No.	Part No.	Description
C704	24232103	CD, 0.01μF, +80%, −20%
C705	24232103	CD, 0.01μF, +80%, −20%
C706	24436470	CD, 47pF
C707	24203470	EL, 47μF, ±20%, 16V
C712	24203470	EL, 47μF, ±20%, 16V
C713	24642100	EL, 10μF, 160V
C714	24212101	CD, 100pF, ±10%
C715	24214472	CD, 4700pF, ±10%, 500V
C716	24212101	CD, 100pF, ±10%
C717	24214472	CD, 4700pF, ±10%, 500V
C718	24642470	EL, 47μF, 160V
C719	24434560	CD, 56pF, ±10%, 500V
C720	24642100	EL, 10μF, 160V
C721	24642470	EL, 47μF, 160V
⚠ C801	24082001	PF, 0.47μF, ±20%, AC125V
⚠ C802	24094905	CD, 0.01μF, +80%, −20%, AC250V
⚠ C803	24094905	CD, 0.01μF, +80%, −20%, AC250V
C810	24086875	EL, 470μF, ±20%, 200V
⚠ C811	24092298	CD, 0.01μF, ±20%, AC125V
⚠ C812	24092298	CD, 0.01μF, ±20%, AC125V
C820	24794470	EL, 47μF, 16V
C840	24764102	EL, 1000μF, ±20%, 25V
C842	24792101	EL, 100μF, 6.3V
C843	24591104	PF, 0.1μF
C845	24232103	CD, 0.01μF, +80%, −20%
C860	24095820	PF, 0.1μF, ±10%, 630V
C861	24092036	CD, 2200pF, ±10%, 2kV
C862	24693683	PF, 0.068μF, 100V
C863	24617959	EL, 4.7μF, ±20%, 50V
C864	24214271	CD, 270pF, ±10%, 500V
C865	24092025	CD, 270pF, ±10%, 2kV
C866	24640908	EL, 33μF, ±20%, 160V
C871	24636220	EL, 22μF, 50V
C872	24538474	PF, 0.47μF
C874	24212332	CD, 3300pF, ±10%
C880	24765332	EL, 3300μF, ±20%, 35V
C881	24214821	CD, 820pF, ±10%, 500V
C883	24214331	CD, 330pF, ±10%, 500V
C884	24086885	EL, 330μF, ±20%, 160V
C886	24763221	EL, 220μF, ±20%, 16V
C887	24640908	EL, 33μF, ±20%, 160V
C888	24092030	CD, 680pF, ±10%, 2kV
C889	24212152	CD, 1500pF, ±10%
C890	24092031	CD, 820pF, ±10%, 2kV
C902	24211102	CD, 1000pF, ±10%, 2kV
C903	24215102	CD, 1000pF, ±10%, 1kV
C904	24591104	PF, 0.1μF
C905	24591104	PF, 0.1μF
C906	24591104	PF, 0.1μF
C911	24436561	CD, 560pF
C912	24436561	CD, 560pF
C913	24436561	CD, 560pF
C916	24436331	CD, 330pF
C924	24203100	EL, 10μF, ±20%, 16V
C930	24763471	EL, 470μF, ±20%, 16V
C931	24436680	CD, 68pF
CA09	24436101	CD, 100pF
CA10	24793471	EL, 470μF, 10V
CA11	24232103	CD, 0.01μF, +80%, −20%
CA12	24636339	EL, 3.3μF, 50V
CA13	24436330	CD, 33pF
CA14	24436330	CD, 33pF

Location No.	Part No.	Description
CA16	24232103	CD, 0.01μF, +80%, −20%
CA21	24232103	CD, 0.01μF, +80%, −20%
CA22	24633100	EL, 10μF, 16V
CA33	24592104	PF, 0.1μF, ±10%
CA35	24436101	CD, 100pF
CA45	24212472	CD, 4700pF, ±10%
CB60	24436361	CD, 360pF
CB64	24436101	CD, 100pF
CD01	24796101	EL, 100μF, 35V
⚠ CD02	24095881	PF, 0.018μF, ±3%, 630V
CD05	24591204	PF, 0.2μF
CD06	24668470	EL, 47μF, ±20%, 35V
CD07	24668471	EL, 470μF, ±20%, 35V
CD08	24591124	PF, 0.12μF
CD09	24591124	PF, 0.12μF
CD10	24636229	EL, 2.2μF, 50V
CD11	24640931	EL, 10μF, ±20%, 100V
CD14	24591124	PF, 0.12μF
CD15	24636478	EL, 0.47μF, 50V
CD17	24095824	PF, 0.27μF, 200V
CE30	24766330	EL, 33μF, ±20%, 50V
CG10	24206479	EL, 4.7μF, 50V
CG22	24206010	EL, 1μF, 50V
CG23	24206339	EL, 3.3μF, 50V
CG24	24203100	EL, 10μF, ±20%, 16V
CG25	24206229	EL, 2.2μF, 50V
CG26	24203100	EL, 10μF, ±20%, 16V
CG28	24591222	PF, 2200pF
CG29	24206479	EL, 4.7μF, 50V
CG30	24203100	EL, 10μF, ±20%, 16V
CG31	24591223	PF, 0.022μF
CG32	24206010	EL, 1μF, 50V
CG33	24591104	PF, 0.1μF
CG34	24206479	EL, 4.7μF, 50V
CG60	24591333	PF, 0.033μF
CG61	24203100	EL, 10μF, ±20%, 16V
CG62	24204479	EL, 4.7μF, ±20%, 25V
CG63	24206010	EL, 1μF, 50V
CG64	24206010	EL, 1μF, 50V
CG65	24763221	EL, 220μF, ±20%, 16V
CG66	24591682	PF, 6800pF
CG67	24206010	EL, 1μF, 50V
CG68	24206010	EL, 1μF, 50V
CG69	24206010	EL, 1μF, 50V
CG70	24203100	EL, 10μF, ±20%, 16V
CG72	24206010	EL, 1μF, 50V
CG73	24206010	EL, 1μF, 50V
CG74	24206010	EL, 1μF, 50V
CG75	24206339	EL, 3.3μF, 50V
CG77	24206010	EL, 1μF, 50V
CG78	24203100	EL, 10μF, ±20%, 16V
CG79	24436391	CD, 390pF
CG80	24206010	EL, 1μF, 50V
CG81	24591333	PF, 0.033μF
CG82	24206010	EL, 1μF, 50V
CG83	24085972	EL, 2.2μF, ±20%, 50V, Non-Polar
CG84	24203100	EL, 10μF, ±20%, 16V
CG85	24203100	EL, 10μF, ±20%, 16V
CS02	24633100	EL, 10μF, 16V
CS03	24633100	EL, 10μF, 16V
CS09	24633100	EL, 10μF, 16V
CS10	24633100	EL, 10μF, 16V
CS20	24636010	EL, 1μF, 50V

Location No.	Part No.	Description
CS21	24636010	EL, 1μF, 50V
CS50	24203100	EL, 10μF, ±20%, 16V
CS51	24203100	EL, 10μF, ±20%, 16V
CS52	24203100	EL, 10μF, ±20%, 16V
CS53	24203100	EL, 10μF, ±20%, 16V
CS54	24203100	EL, 10μF, ±20%, 16V
CS62	24538124	PF, 0.12μF
CS63	24538124	PF, 0.12μF
CV01	24633100	EL, 10μF, 16V
CV02	24633100	EL, 10μF, 16V
CV04	24633100	EL, 10μF, 16V
CV07	24636339	EL, 3.3μF, 50V
CV08	24636479	EL, 4.7μF, 50V
CV09	24794101	EL, 100μF, 16V
CV10	24633100	EL, 10μF, 16V
CV11	24794101	EL, 100μF, 16V
CV12	24436100	CD, 10pF, ±0.25pF
CV40	24794470	EL, 47μF, 16V
CV41	24232103	CD, 0.01μF, +80%, −20%
CV42	24232103	CD, 0.01μF, +80%, −20%
CV43	24203100	EL, 10μF, ±20%, 16V
CV44	24203100	EL, 10μF, ±20%, 16V
CX01	24232103	CD, 0.01μF, +80%, −20%
CX02	24794470	EL, 47μF, 16V
CX03	24436181	CD, 180pF
CZ01	24763101	EL, 100μF, ±20%, 16V
CZ02	24232103	CD, 0.01μF, +80%, −20%
CZ05	24232103	CD, 0.01μF, +80%, −20%
CZ06	24232103	CD, 0.01μF, +80%, −20%
CZ07	24206339	EL, 3.3μF, 50V
CZ08	24232103	CD, 0.01μF, +80%, −20%
CZ09	24203100	EL, 10μF, ±20%, 16V
CZ10	24232103	CD, 0.01μF, +80%, −20%
CZ12	24436220	CD, 22pF
CZ13	24436680	CD, 68pF
CZ14	24436220	CD, 22pF
CZ15	24436560	CD, 56pF
CZ16	24203220	EL, 22μF, ±20%, 16V
CZ17	24436181	CD, 180pF
CZ18	24172620	CD, 62pF
CZ19	24172200	CD, 20pF
CZ22	24203100	EL, 10μF, ±20%, 16V
CZ23	24436101	CD, 100pF
CZ24	24172200	CD, 20pF
CZ25	24232102	CD, 1000pF, +80%, −20%
CZ37	24436820	CD, 82pF
CZ38	24206010	EL, 1μF, 50V
CZ39	24206479	EL, 4.7μF, 50V
CZ40	24436121	CD, 120pF
CZ41	24206479	EL, 4.7μF, 50V
CZ42	24206479	EL, 4.7μF, 50V
CZ43	24232103	CD, 0.01μF, +80%, −20%
CZ44	24172100	CD, 10pF
CZ45	24795330	EL, 33μF, 25V
CZ46	24206479	EL, 4.7μF, 50V
CZ47	24206479	EL, 4.7μF, 50V
CZ48	24206010	EL, 1μF, 50V
CZ49	24206010	EL, 1μF, 50V
CZ63	24795330	EL, 33μF, 25V
CZ64	24473560	CD, 56pF
CZ65	24436241	CD, 240pF
CZ67	24232103	CD, 0.01μF, +80%, −20%
CZ68	24232103	CD, 0.01μF, +80%, −20%
CZ69	24232103	CD, 0.01μF, +80%, −20%

Location No.	Part No.	Description
CZ70	24232103	CD, 0.01μF, +80%, −20%
RESISTORS		
R102	24552241	OMF, 240 ohm, 1/2W
R108	24360684	CF, 680k ohm, 1/8W
R109	24360271	CF, 270 ohm, 1/8W
R111	24360471	CF, 470 ohm, 1/8W
R112	24360302	CF, 3k ohm, 1/8W
R113	24360133	CF, 13k ohm, 1/8W
R115	24360154	CF, 150k ohm, 1/8W
R118	24360103	CF, 10k ohm, 1/8W
R121	24552681	OMF, 680 ohm, 1/2W
R123	24552111	OMF, 110 ohm, 1/2W
R124	24360561	CF, 560 ohm, 1/8W
R125	24360102	CF, 1k ohm, 1/8W
R127	24360473	CF, 47k ohm, 1/8W
R128	24553620	OMF, 62 ohm, 1W
R129	24360561	CF, 560 ohm, 1/8W
R130	24360474	CF, 470k ohm, 1/8W
R133	24360102	CF, 1k ohm, 1/8W
R137	24360622	CF, 6200 ohm, 1/8W
R139	24360101	CF, 100 ohm, 1/8W
R141	24360331	CF, 330 ohm, 1/8W
R142	24360681	CF, 680 ohm, 1/8W
R152	24066927	VR, 5k ohm, 1/10W
R161	24360111	CF, 110 ohm, 1/8W
R162	24360562	CF, 5600 ohm, 1/8W
R164	24366181	CF, 180 ohm
R165	24360152	CF, 1500 ohm, 1/8W
R168	24552151	OMF, 150 ohm, 1/2W
R171	24360364	CF, 360k ohm, 1/8W
R176	24366103	CF, 10k ohm
R181	24366153	CF, 15k ohm
⚠ R182	24545399	FR, 3.9 ohm, 1/4W
R183	24360223	CF, 22k ohm, 1/8W
R185	24366563	CF, 56k ohm
R186	24382560	OMF, 56 ohm, 1W
R206	24366104	CF, 100k ohm
R209	24366181	CF, 180 ohm
R210	24366821	CF, 820 ohm
R212	24366222	CF, 2200 ohm
R214	24366682	CF, 6800 ohm
R216	24366103	CF, 10k ohm
R217	24366102	CF, 1k ohm
R218	24367513	CF, 51k ohm, ±2%
R222	24366621	CF, 620 ohm
R227	24367163	CF, 16k ohm, ±2%
R228	24366222	CF, 2200 ohm
R229	24366394	CF, 390k ohm
R230	24366104	CF, 100k ohm
R233	24366433	CF, 43k ohm
R236	24366562	CF, 5600 ohm
R237	24366332	CF, 3300 ohm
R240	24366104	CF, 100k ohm
R241	24366204	CF, 200k ohm
R242	24366473	CF, 47k ohm
R244	24366473	CF, 47k ohm
R246	24366104	CF, 100k ohm
R257	24066928	VR, 2k ohm, 1/10W
R270	24360684	CF, 680k ohm, 1/8W
R271	24360561	CF, 560 ohm, 1/8W
R274	24360103	CF, 10k ohm, 1/8W
R275	24360564	CF, 560k ohm, 1/8W
R276	24360222	CF, 2200 ohm, 1/8W

Location No.	Part No.	Description
R277	24360474	CF, 470k ohm, 1/8W
R278	24360222	CF, 2200 ohm, 1/8W
R279	24360472	CF, 4700 ohm, 1/8W
R280	24360103	CF, 10k ohm, 1/8W
R281	24360102	CF, 1k ohm, 1/8W
R282	24360103	CF, 10k ohm, 1/8W
R283	24360393	CF, 39k ohm, 1/8W
R284	24360153	CF, 15k ohm, 1/8W
R285	24360471	CF, 470 ohm, 1/8W
R287	24366472	CF, 4700 ohm
R288	24366472	CF, 4700 ohm
R289	24360221	CF, 220 ohm, 1/8W
R290	24366102	CF, 1k ohm
R294	24366561	CF, 560 ohm
R297	24366101	CF, 100 ohm
R298	24366102	CF, 1k ohm
R299	24366221	CF, 220 ohm
R301	24366102	CF, 1k ohm
R302	24552511	OMF, 510 ohm, 1/2W
R303	24366102	CF, 1k ohm
R304	24366123	CF, 12k ohm
R305	24983918	MF, 0.91 ohm, 1W
R306	24366393	CF, 39k ohm
R307	24366304	CF, 300k ohm
R308	24366134	CF, 130k ohm
R309	24366242	CF, 2400 ohm
R310	24366243	CF, 24k ohm
R311	24366162	CF, 1600 ohm
R312	24552332	OMF, 3300 ohm, 1/2W
R313	24366105	CF, 1M ohm
R314	24366331	CF, 330 ohm
R315	24553330	OMF, 33 ohm, 1W
R316	24366102	CF, 1k ohm
R317	24366151	CF, 150 ohm
R318	24366125	CF, 1.2M ohm
⚠ R327	24000577	FR, 5.6 ohm, 1W
R335	24552151	OMF, 150 ohm, 1/2W
⚠ R336	24383221	OMF, 220 ohm, 2W
R352	24066928	VR, 2k ohm, 1/10W
R370	24552102	OMF, 1k ohm, 1/2W
R401	24366331	CF, 330 ohm
R402	24366362	CF, 3600 ohm
R403	24366204	CF, 200k ohm
R405	24366161	CF, 160 ohm
R406	24366750	CF, 75 ohm
R407	24552512	OMF, 5100 ohm, 1/2W
R409	24376153	CF, 15k ohm, 1/2W
R410	24366331	CF, 330 ohm
R411	24366330	CF, 33 ohm
R412	24553271	OMF, 270 ohm, 1W
R414	24366392	CF, 3900 ohm
R415	24553242	OMF, 2400 ohm, 1W
⚠ R416	24007625	Cement, 2k ohm, 7W
R420	24366201	CF, 200 ohm
R430	24366102	CF, 1k ohm
R440	24552132	OMF, 1300 ohm, 1/2W
⚠ R441	24532102	FR, 1k ohm, 1W
R442	24553393	OMF, 39k ohm, 1W
R443	24982109	MF, 1 ohm, 1/2W
R444	24983398	OMF, 0.39 ohm, 1W
R445	24982398	OMF, 0.39 ohm, 1/2W
R447	24382473	OMF, 47k ohm, 1W
⚠ R448	24984249	MF, 2.4 ohm, 2W
⚠ R449	24000946	Varistor, RZ45VW2A560K

Location No.	Part No.	Description
R450	24066879	VR, 1k ohm, 0.3W
R461	24366333	CF, 33k ohm
R462	24366102	CF, 1k ohm
R463	24366102	CF, 1k ohm
⚠ R464	24327153	MF, 15k ohm, ±1%, 1/4W
⚠ R465	24367102	CF, 1k ohm, ±2%
⚠ R466	24327752	MF, 7500 ohm, ±1%, 1/4W
R467	24366152	CF, 1500 ohm
R468	24366104	CF, 100k ohm
R469	24366103	CF, 10k ohm
R470	24366203	CF, 20k ohm
R471	24366102	CF, 1k ohm
R472	24366101	CF, 100 ohm
R473	24366104	CF, 100k ohm
R474	24366183	CF, 18k ohm
⚠ R480	24533151	FR, 150 ohm, 2W
R481	24552272	OMF, 2700 ohm, 1/2W
⚠ R482	24383153	OMF, 15k ohm, 2W
R483	24366910	CF, 91 ohm
R484	24366202	CF, 2k ohm
R485	24366472	CF, 4700 ohm
R486	24366432	CF, 4300 ohm
R487	24366432	CF, 4300 ohm
R488	24360105	CF, 1M ohm, 1/8W
R489	24366302	CF, 3k ohm
R490	24366302	CF, 3k ohm
R491	24553272	OMF, 2700 ohm, 1W
R492	24327514	MF, 510k ohm, ±1%, 1/4W
R493	24327624	MF, 620k ohm, ±1%, 1/4W
⚠ R494	24323278	OMF, 0.27 ohm, 2W
R495	24366183	CF, 18k ohm
R496	24366333	CF, 33k ohm
R497	24366102	CF, 1k ohm
R500	24366221	CF, 220 ohm
R501	24366391	CF, 390 ohm
R502	24366334	CF, 330k ohm
R504	24366182	CF, 1800 ohm
R505	24366333	CF, 33k ohm
R509	24367472	CF, 4700 ohm, ±2%
R510	24367332	CF, 3300 ohm, ±2%
R511	24366242	CF, 2400 ohm
R515	24366125	CF, 1.2M ohm
R517	24366563	CF, 56k ohm
R520	24366222	CF, 2200 ohm
R521	24366101	CF, 100 ohm
R526	24366753	CF, 75k ohm
R527	24366163	CF, 16k ohm
R528	24366103	CF, 10k ohm
R551	24066926	VR, 10k ohm, 1/10W
R552	24066926	VR, 10k ohm, 1/10W
R556	24066927	VR, 5k ohm, 1/10W
R560	24366512	CF, 5100 ohm
R561	24366393	CF, 39k ohm
R562	24366473	CF, 47k ohm
R564	24366563	CF, 56k ohm
R565	24366823	CF, 82k ohm
R580	24366122	CF, 1200 ohm
R584	24366473	CF, 47k ohm
R605	24360222	CF, 2200 ohm, 1/8W
R607	24360101	CF, 100 ohm, 1/8W
R608	24360102	CF, 1k ohm, 1/8W
R609	24360682	CF, 6800 ohm, 1/8W
R610	24360682	CF, 6800 ohm, 1/8W
R611	24360102	CF, 1k ohm, 1/8W

Location No.	Part No.	Description
R612	24360102	CF, 1k ohm, 1/8W
R614	24360101	CF, 100 ohm, 1/8W
R615	24360223	CF, 22k ohm, 1/8W
R616	24360683	CF, 68k ohm, 1/8W
R617	24360472	CF, 4700 ohm, 1/8W
R618	24360562	CF, 5600 ohm, 1/8W
R638	24366302	CF, 3k ohm
R639	24366302	CF, 3k ohm
R640	24366821	CF, 820 ohm
R641	24366821	CF, 820 ohm
R647	24366229	CF, 2.2 ohm
R648	24366229	CF, 2.2 ohm
R659	24066926	VR, 10k ohm, 1/10W
R665	24552331	OMF, 330 ohm, 1/2W
R666	24552331	OMF, 330 ohm, 1/2W
R667	24360103	CF, 10k ohm, 1/8W
R669	24360103	CF, 10k ohm, 1/8W
R701	24366103	CF, 10k ohm
R703	24366681	CF, 680 ohm
R704	24366102	CF, 1k ohm
R705	24366222	CF, 2200 ohm
R706	24366222	CF, 2200 ohm
R707	24366102	CF, 1k ohm
R708	24366102	CF, 1k ohm
R714	24552680	OMF, 68 ohm, 1/2W
R715	24366203	CF, 20k ohm
R716	24366273	CF, 27k ohm
R717	24366333	CF, 33k ohm
R718	24366222	CF, 2200 ohm
R721	24366102	CF, 1k ohm
R722	24366471	CF, 470 ohm
R723	24366470	CF, 47 ohm
R724	24366470	CF, 47 ohm
R725	24366182	CF, 1800 ohm
R730	24552100	OMF, 10 ohm, 1/2W
R731	24552301	OMF, 300 ohm, 1/2W
R732	24366820	CF, 82 ohm
R733	24366683	CF, 68k ohm
R734	24366820	CF, 82 ohm
R735	24366683	CF, 68k ohm
R736	24552101	OMF, 100 ohm, 1/2W
R737	24366152	CF, 1500 ohm
R738	24366123	CF, 12k ohm
R739	24366152	CF, 1500 ohm
R740	24552101	OMF, 100 ohm, 1/2W
R741	24321279	OMF, 2.7 ohm, 1/2W
R742	24321279	OMF, 2.7 ohm, 1/2W
⚠ R743	24554221	OMF, 220 ohm, 2W
R744	24366122	CF, 1200 ohm
R745	24366122	CF, 1200 ohm
R803	24982228	OMF, 0.22 ohm, 1/2W
⚠ R804	24946395	CC, 3.9M ohm, ±10%, 1/2W
⚠ R805	24946395	CC, 3.9M ohm, ±10%, 1/2W
⚠ R808	24000862	PTC Thermistor, 7 ohm, ±20%, 140V
⚠ R810	24007483	Cement, 1.1 ohm, 20W
⚠ R820	24383750	OMF, 75 ohm, 2W
R821	24366362	CF, 3600 ohm
R838	24366273	CF, 27k ohm
R839	24366153	CF, 15k ohm
⚠ R840	24383823	OMF, 82k ohm, 2W
R841	24366562	CF, 5600 ohm
R842	24381330	OMF, 33 ohm, 1/2W
R843	24004944	MF, 0.15 ohm, 1W

Location No.	Part No.	Description
R860	24383823	OMF, 82k ohm, 2W
R861	24983688	MF, 0.68 ohm, 1W
R862	24942204	CC, 200k ohm, 1/2W
⚠ R863	24007842	Cement, 12 ohm, 5W
R864	24321519	OMF, 5.1 ohm, 1/2W
R865	24004944	MF, 0.15 ohm, 1W
R866	24004944	MF, 0.15 ohm, 1W
⚠ R867	24007833	Cement, 30 ohm, 5W
R868	24321339	OMF, 3.3 ohm, 1/2W
R869	24366624	CF, 620k ohm
R870	24327203	MF, 20k ohm, ±1%, 1/4W
R871	24327203	MF, 20k ohm, ±1%, 1/4W
R872	24552181	OMF, 180 ohm, 1/2W
R873	24552301	OMF, 300 ohm, 1/2W
R874	24366681	CF, 680 ohm
R875	24366102	CF, 1k ohm
⚠ R876	24323628	OMF, 0.62 ohm, 2W
R877	24366471	CF, 470 ohm
R878	24327133	MF, 13k ohm, ±1%, 1/4W
R879	24327113	MF, 11k ohm, ±1%, 1/4W
R880	24327912	MF, 9100 ohm, ±1%, 1/4W
R881	24366102	CF, 1k ohm
⚠ R884	24531470	FR, 47 ohm, 1/2W
R885	24360152	CF, 1500 ohm, 1/8W
⚠ R899	24000268	Varistor, ENC271D-14A
R902	24366101	CF, 100 ohm
R903	24366101	CF, 100 ohm
R904	24366101	CF, 100 ohm
R910	24366681	CF, 680 ohm
R911	24366681	CF, 680 ohm
R912	24366681	CF, 680 ohm
R913	24366101	CF, 100 ohm
R916	24366560	CF, 56 ohm
R917	24366820	CF, 82 ohm
R918	24366560	CF, 56 ohm
⚠ R920	24000891	FR, 1.3 ohm, 1W
R921	24366750	CF, 75 ohm
R922	24376272	CF, 2700 ohm, 1/2W
R923	24376272	CF, 2700 ohm, 1/2W
R924	24376272	CF, 2700 ohm, 1/2W
R926	24366561	CF, 560 ohm
R927	24366561	CF, 560 ohm
R929	24366101	CF, 100 ohm
R930	24366222	CF, 2200 ohm
R931	24366562	CF, 5600 ohm
R932	24366151	CF, 150 ohm
R933	24366221	CF, 220 ohm
R938	24366103	CF, 10k ohm
R939	24366103	CF, 10k ohm
R940	24366103	CF, 10k ohm
R942	24366562	CF, 5600 ohm
R943	24366562	CF, 5600 ohm
R944	24366562	CF, 5600 ohm
R945	24366392	CF, 3900 ohm
R946	24366392	CF, 3900 ohm
R947	24366392	CF, 3900 ohm
R952	24061800	VR, 200 ohm, 1/8W
R953	24061800	VR, 200 ohm, 1/8W
R956	24061795	VR, 10k ohm, 1/8W
R957	24061795	VR, 10k ohm, 1/8W
R958	24061795	VR, 10k ohm, 1/8W
⚠ R960	24383153	OMF, 15k ohm, 2W
⚠ R961	24383153	OMF, 15k ohm, 2W
⚠ R962	24383153	OMF, 15k ohm, 2W

Location No.	Part No.	Description
⚠ R963	24383153	OMF, 15k ohm, 2W
⚠ R964	24383153	OMF, 15k ohm, 2W
⚠ R965	24383153	OMF, 15k ohm, 2W
R972	24366560	CF, 56 ohm
R973	24366560	CF, 56 ohm
R975	24366681	CF, 680 ohm
RA01	24366102	CF, 1k ohm
RA02	24366101	CF, 100 ohm
RA03	24366103	CF, 10k ohm
RA04	24366473	CF, 47k ohm
RA05	24366102	CF, 1k ohm
RA09	24366102	CF, 1k ohm
RA10	24366301	CF, 300 ohm
RA11	24366471	CF, 470 ohm
RA12	24366102	CF, 1k ohm
RA13	24366103	CF, 10k ohm
RA15	24366363	CF, 36k ohm
RA17	24366101	CF, 100 ohm
RA19	24366473	CF, 47k ohm
RA20	24366203	CF, 20k ohm
RA21	24366473	CF, 47k ohm
RA22	24366622	CF, 6200 ohm
RA23	24366202	CF, 2k ohm
RA24	24366202	CF, 2k ohm
RA25	24366202	CF, 2k ohm
RA26	24366102	CF, 1k ohm
RA27	24366102	CF, 1k ohm
RA30	24366221	CF, 220 ohm
RA31	24366272	CF, 2700 ohm
RA33	24366102	CF, 1k ohm
RA35	24366102	CF, 1k ohm
RA36	24366102	CF, 1k ohm
RA37	24366473	CF, 47k ohm
RA38	24366102	CF, 1k ohm
RA39	24366471	CF, 470 ohm
RA40	24366102	CF, 1k ohm
RA41	24366102	CF, 1k ohm
RA42	24366362	CF, 3600 ohm
RA43	24366103	CF, 10k ohm
RA44	24366101	CF, 100 ohm
RA45	24366223	CF, 22k ohm
RA46	24366102	CF, 1k ohm
RA47	24366332	CF, 3300 ohm
RA48	24366102	CF, 1k ohm
RA49	24366102	CF, 1k ohm
RA65	24366102	CF, 1k ohm
RA66	24366103	CF, 10k ohm
RA67	24366273	CF, 27k ohm
RA73	24366272	CF, 2700 ohm
RA74	24366473	CF, 47k ohm
RA75	24366102	CF, 1k ohm
RA76	24366103	CF, 10k ohm
RA77	24366103	CF, 10k ohm
RA78	24366472	CF, 4700 ohm
RA90	24360103	CF, 10k ohm, 1/8W
RA91	24360223	CF, 22k ohm, 1/8W
RA92	24360683	CF, 68k ohm, 1/8W
RA93	24360103	CF, 10k ohm, 1/8W
RA94	24360223	CF, 22k ohm, 1/8W
RA95	24360683	CF, 68k ohm, 1/8W
RA96	24360103	CF, 10k ohm, 1/8W
RA97	24360223	CF, 22k ohm, 1/8W
RA98	24360683	CF, 68k ohm, 1/8W
RA99	24360103	CF, 10k ohm, 1/8W

Location No.	Part No.	Description
RB01	24366102	CF, 1k ohm
RB03	24366223	CF, 22k ohm
RB11	24366560	CF, 56 ohm
RB12	24366821	CF, 820 ohm
RB13	24366560	CF, 56 ohm
RB14	24366821	CF, 820 ohm
RB22	24366183	CF, 18k ohm
RB24	24366823	CF, 82k ohm
RB26	24366183	CF, 18k ohm
RB27	24366103	CF, 10k ohm
RB28	24366104	CF, 100k ohm
RB29	24366203	CF, 20k ohm
RB30	24366203	CF, 20k ohm
RB62	24366392	CF, 3900 ohm
RB77	24366302	CF, 3k ohm
RB80	24366332	CF, 3300 ohm
RB81	24366223	CF, 22k ohm
⚠ RD01	24531150	FR, 15 ohm, 1/2W
⚠ RD02	24383100	OMF, 10 ohm, 2W
RD03	24366562	CF, 5600 ohm
RD05	24003041	MF, 4700 ohm, 1/4W
RD06	24366222	CF, 2200 ohm
RD07	24366154	CF, 150k ohm
RD08	24366203	CF, 20k ohm
RD09	24366152	CF, 1500 ohm
RD10	24366102	CF, 1k ohm
RD11	24366224	CF, 220k ohm
RD12	24366822	CF, 8200 ohm
RD13	24366363	CF, 36k ohm
RD14	24366103	CF, 10k ohm
RD15	24366104	CF, 100k ohm
RD16	24366103	CF, 10k ohm
RD17	24366153	CF, 15k ohm
RD19	24376913	CF, 91k ohm, 1/2W
RD20	24366623	CF, 62k ohm
RD21	24366154	CF, 150k ohm
RD50	24066877	VR, 5k ohm, 0.3W
RD51	24066875	VR, 20k ohm, 0.3W
RE03	24360102	CF, 1k ohm, 1/8W
RE04	24366333	CF, 33k ohm
RE12	24366103	CF, 10k ohm
⚠ RE30	24383113	OMF, 11k ohm, 2W
RE70	24366103	CF, 10k ohm
RE72	24366203	CF, 20k ohm
RE73	24366752	CF, 7500 ohm
RG24	24360564	CF, 560k ohm, 1/8W
RG25	24327223	MF, 22k ohm, ±1%, 1/4W
RG26	24360272	CF, 2700 ohm, 1/8W
RG27	24360122	CF, 1200 ohm, 1/8W
RG28	24360333	CF, 33k ohm, 1/8W
RG29	24360361	CF, 360 ohm, 1/8W
RG30	24360682	CF, 6800 ohm, 1/8W
RG31	24360301	CF, 300 ohm, 1/8W
RG32	24360752	CF, 7500 ohm, 1/8W
RG43	24360102	CF, 1k ohm, 1/8W
RG44	24360751	CF, 750 ohm, 1/8W
RG46	24366103	CF, 10k ohm
RG47	24366103	CF, 10k ohm
RG51	24066874	VR, 50k ohm, 0.3W
RG52	24066874	VR, 50k ohm, 0.3W
RG53	24066872	VR, 200k ohm, 0.3W
RG54	24066927	VR, 5k ohm, 1/10W
RG56	24066872	VR, 200k ohm, 0.3W
RG57	24066927	VR, 5k ohm, 1/10W

Location No.	Part No.	Description
RG58	24066927	VR, 5k ohm, 1/10W
RG59	24066926	VR, 10k ohm, 1/10W
RG60	24327244	MF, 240k ohm, ±1%, 1/4W
RG61	24360242	CF, 2400 ohm, 1/8W
RG62	24360102	CF, 1k ohm, 1/8W
RG64	24360101	CF, 100 ohm, 1/8W
RG65	24360101	CF, 100 ohm, 1/8W
RG66	24360101	CF, 100 ohm, 1/8W
RG67	24360101	CF, 100 ohm, 1/8W
RG69	24360101	CF, 100 ohm, 1/8W
RG70	24360101	CF, 100 ohm, 1/8W
RG71	24360101	CF, 100 ohm, 1/8W
RG73	24360101	CF, 100 ohm, 1/8W
RG74	24360101	CF, 100 ohm, 1/8W
RG75	24360101	CF, 100 ohm, 1/8W
RG76	24360101	CF, 100 ohm, 1/8W
RG77	24360101	CF, 100 ohm, 1/8W
RG78	24360272	CF, 2700 ohm, 1/8W
RG79	24360102	CF, 1k ohm, 1/8W
RG80	24360103	CF, 10k ohm, 1/8W
RG81	24360103	CF, 10k ohm, 1/8W
RG82	24360512	CF, 5100 ohm, 1/8W
RG83	24360512	CF, 5100 ohm, 1/8W
RG84	24360473	CF, 47k ohm, 1/8W
RG85	24327244	MF, 240k ohm, ±1%, 1/4W
RG86	24360512	CF, 5100 ohm, 1/8W
RG90	24366105	CF, 1M ohm
RS09	24366102	CF, 1k ohm
RS10	24366102	CF, 1k ohm
RS11	24366101	CF, 100 ohm
RS13	24366101	CF, 100 ohm
RS15	24366101	CF, 100 ohm
RS16	24366102	CF, 1k ohm
RS17	24366102	CF, 1k ohm
RS34	24366101	CF, 100 ohm
RS42	24366101	CF, 100 ohm
RS45	24366272	CF, 2700 ohm
RS46	24366272	CF, 2700 ohm
RS52	24930163	CF, 16k ohm, 1/8W
RS53	24360103	CF, 10k ohm, 1/8W
RS54	24930163	CF, 16k ohm, 1/8W
RS55	24360103	CF, 10k ohm, 1/8W
RS60	24360102	CF, 1k ohm, 1/8W
RS61	24360102	CF, 1k ohm, 1/8W
RS100	24366821	CF, 820 ohm
RS101	24366821	CF, 820 ohm
RV01	24366750	CF, 75 ohm
RV05	24366222	CF, 2200 ohm
RV08	24366471	CF, 470 ohm
RV09	24366221	CF, 220 ohm
RV11	24553470	OMF, 47 ohm, 1W
RV12	24366103	CF, 10k ohm
RV13	24366103	CF, 10k ohm
RV14	24366102	CF, 1k ohm
RV15	24366102	CF, 1k ohm
RV16	24366222	CF, 2200 ohm
RV17	24366224	CF, 220k ohm
RV18	24366102	CF, 1k ohm
RV20	24366222	CF, 2200 ohm
RV21	24366560	CF, 56 ohm
RV34	24360221	CF, 220 ohm, 1/8W
RV41	24360222	CF, 2200 ohm, 1/8W
RV42	24360563	CF, 56k ohm, 1/8W
RV43	24360393	CF, 39k ohm, 1/8W

Location No.	Part No.	Description
RV44	24360332	CF, 3300 ohm, 1/8W
RV46	24360101	CF, 100 ohm, 1/8W
RV47	24360222	CF, 2200 ohm, 1/8W
RV48	24360102	CF, 1k ohm, 1/8W
RV49	24360103	CF, 10k ohm, 1/8W
RV60	24360222	CF, 2200 ohm, 1/8W
RV61	24360561	CF, 560 ohm, 1/8W
RV63	24366121	CF, 120 ohm
RV64	24366563	CF, 56k ohm
RV65	24360223	CF, 22k ohm, 1/8W
RV90	24366750	CF, 75 ohm
RV91	24366750	CF, 75 ohm
RX01	24366472	CF, 4700 ohm
RX02	24366104	CF, 100k ohm
RX03	24366104	CF, 100k ohm
RZ01	24360103	CF, 10k ohm, 1/8W
RZ02	24360102	CF, 1k ohm, 1/8W
RZ03	24360202	CF, 2k ohm, 1/8W
RZ04	24360152	CF, 1500 ohm, 1/8W
RZ05	24360222	CF, 2200 ohm, 1/8W
RZ06	24360102	CF, 1k ohm, 1/8W
RZ07	24360272	CF, 2700 ohm, 1/8W
RZ09	24552121	OMF, 120 ohm, 1/2W
RZ10	24360222	CF, 2200 ohm, 1/8W
RZ11	24360102	CF, 1k ohm, 1/8W
RZ13	24360102	CF, 1k ohm, 1/8W
RZ14	24930751	CF, 750 ohm, 1/8W
RZ15	24360681	CF, 680 ohm, 1/8W
RZ16	24930751	CF, 750 ohm, 1/8W
RZ18	24360102	CF, 1k ohm, 1/8W
RZ19	24360681	CF, 680 ohm, 1/8W
RZ20	24360331	CF, 330 ohm, 1/8W
RZ21	24360202	CF, 2k ohm, 1/8W
RZ22	24360103	CF, 10k ohm, 1/8W
RZ23	24360103	CF, 10k ohm, 1/8W
RZ27	24360562	CF, 5600 ohm, 1/8W
RZ30	24360511	CF, 510 ohm, 1/8W
RZ31	24360222	CF, 2200 ohm, 1/8W
RZ32	24360331	CF, 330 ohm, 1/8W
RZ35	24360102	CF, 1k ohm, 1/8W
RZ36	24360102	CF, 1k ohm, 1/8W
RZ37	24360511	CF, 510 ohm, 1/8W
RZ38	24360472	CF, 4700 ohm, 1/8W
RZ40	24930751	CF, 750 ohm, 1/8W
RZ41	24360152	CF, 1500 ohm, 1/8W
RZ42	24360132	CF, 1300 ohm, 1/8W
RZ43	24930751	CF, 750 ohm, 1/8W
RZ46	24360102	CF, 1k ohm, 1/8W
RZ50	24066928	VR, 2k ohm, 1/10W
RZ51	24066879	VR, 1k ohm, 0.3W
RZ52	24066878	VR, 2k ohm, 0.3W
RZ53	24066928	VR, 2k ohm, 1/10W
RZ54	24066878	VR, 2k ohm, 0.3W
RZ64	24360331	CF, 330 ohm, 1/8W
RZ65	24360332	CF, 3300 ohm, 1/8W
RZ89	24360331	CF, 330 ohm, 1/8W

COILS & TRANSFORMERS

L061	23284101	Coil, Peaking, TRF4101KG
L102	23237999	Coil, Peaking, TRF4109AC
L103	23262820	Coil, PIF, TRF1070D
L105	23262652	Coil, IF, TRF1130D
L108	23237977	Coil, Peaking, TRF4680AC
L110	23237977	Coil, Peaking, TRF4680AC

Location No.	Part No.	Description
L112	23237977	Coil, Peaking, TRF4680AC
L141	23237985	Coil, Peaking, TRF4150AC
L142	23237984	Coil, Peaking, TRF4180AC
L171	23262827	Coil, PIF, TRF1066D
L202	23238562	Coil, Peaking, TRF4109AJ
L205	23238708	Coil, Peaking, TRF4330AJ
L301	23103940	Coil (Ferrite Bead), TEM2001
L401	23238712	Coil, Peaking, TRF4150AJ
L403	23238783	Coil, Peaking, TRF4151AG
L411	23103940	Coil (Ferrite Bead), TEM2001
⚠ L441	23233046	Coil, Linearity, TLN2131
L442	23221894	Coil, Choke, TLN3063
L444	23103940	Coil (Ferrite Bead), TEM2001
L448	23221064	Coil, Choke, TLN1015J
⚠ L462	23227392	Deflection Yoke, YS-57836
L501	23238708	Coil, Peaking, TRF4330AJ
L601	23262819	Coil, PIF, TRF1071D
L602	23252918	Coil, SIF Descri., TRF6019D
L702	23261974	Coil, Choke, HC5-035
L703	23237982	Coil, Peaking, TRF4270AC
L704	23103859	Coil (Ferrite Bead), TEM2011
L705	23103859	Coil (Ferrite Bead), TEM2011
L860	23103859	Coil (Ferrite Bead), TEM2011
L861	23103859	Coil (Ferrite Bead), TEM2011
L882	23103859	Coil (Ferrite Bead), TEM2011
L883	23103859	Coil (Ferrite Bead), TEM2011
L884	23103859	Coil (Ferrite Bead), TEM2011
L885	23221746	Coil, Choke, TLN3155D
L886	23103859	Coil (Ferrite Bead), TEM2011
L887	23103859	Coil (Ferrite Bead), TEM2011
⚠ L901	23200631	Coil, Degaussing, TSB2304AT
L902	23237969	Coil, Peaking, TRF4331AC
L903	23237969	Coil, Peaking, TRF4331AC
L904	23237969	Coil, Peaking, TRF4331AC
L905	23237982	Coil, Peaking, TRF4270AC
L906	23237982	Coil, Peaking, TRF4270AC
L907	23237982	Coil, Peaking, TRF4270AC
LA02	23262776	Coil, IF, TRF1114
LD02	23221737	Coil, Choke, TLN3109D
LG60	23238721	Coil, Peaking, TRF4103AI
LZ01	23237981	Coil, Peaking, TRF4330AC
LZ03	23237978	Coil, Peaking, TRF4560AC
LZ04	23237978	Coil, Peaking, TRF4560AC
LZ06	23238712	Coil, Peaking, TRF4150AJ
LZ07	23261052	Coil, Choke, AZ9246F
LZ08	23261996	Coil, Choke, TRF9213
LZ09	23237980	Coil, Peaking, TRF4390AC
LZ10	23237976	Coil, Peaking, TRF4820AC
LZ11	23237987	Coil, Peaking, TRF4100AC
LZ13	23261982	Coil, RF Choke, TRF9224D
LZ15	23237987	Coil, Peaking, TRF4100AC
T401	23224972	Transformer, Horiz. Drive, TLN1052
⚠ T461	23236239	Transformer, Flyback, TFB5047BD
⚠ T462	23224920	Transformer, Pulse, TLN2130
⚠ T801	23155874	Line Filter, TRF3155
T840	23213513	Transformer, Power, TPW1459AZ
⚠ T862	23213504	Transformer, Converter, TPW3163

Location No.	Part No.	Description
SEMICONDUCTORS		
IC101	23318086	IC, M51366SP
IC270	23318244	IC, CX20125
IC301	23119142	IC, AN5521
IC482	B0350510	IC, TA75458S
IC483	B0372960	IC, TA78L009AP
IC501	B0383540	IC, TA8724N
IC610	B0376856	IC, TA8211AH
IC840	23318299	IC, L78MR05-FA
ICA01	23318860	IC, TMP47C634N2454
ICA02	23318861	IC, M6M80011L
ICG01	B0379220	IC, TA8622N
ICG08	70119527	IC, CXA1011P
ICS01	23318051	IC, M51321P
ICS05	B0347500	IC, TA75358P
ICV40	B0470532	IC, TC4053BP
ICX01	23318627	IC, μPD6336C
ICZ04	B0589085	IC, TL8608AP
ICZ30	B0379200	IC, TA8620P
Q110	A6002040	Transistor, RN1204
Q111	A6317440	Transistor, 2SC1815-Y
Q113	A6317440	Transistor, 2SC1815-Y
Q161	A6708871	Transistor, 2SC388ATM
Q162	A6708871	Transistor, 2SC388ATM
Q171	A6534040	Transistor, 2SA1015-Y
Q181	A6848520	Transistor, 2SD880-Y
Q182	A6848520	Transistor, 2SD880-Y
Q246	A6534040	Transistor, 2SA1015-Y
Q271	A6317440	Transistor, 2SC1815-Y
Q272	A6317440	Transistor, 2SC1815-Y
Q274	A6534040	Transistor, 2SA1015-Y
Q275	A6317440	Transistor, 2SC1815-Y
Q293	A6317440	Transistor, 2SC1815-Y
Q400	A6324961	Transistor, 2SC2229-Y
Q402	A678971D	Transistor, 2SC1569 FA-5
⚠ Q404	A6365232	Transistor, 2SC3892A
Q410	A6317440	Transistor, 2SC1815-Y
Q480	A6867051	Transistor, 2SD1294
Q481	A6324961	Transistor, 2SC2229-Y
Q484	A6534040	Transistor, 2SA1015-Y
Q485	A6317440	Transistor, 2SC1815-Y
Q486	A6317440	Transistor, 2SC1815-Y
Q512	A6317440	Transistor, 2SC1815-Y
Q580	A6317440	Transistor, 2SC1815-Y
Q602	A6317440	Transistor, 2SC1815-Y
Q603	A6317440	Transistor, 2SC1815-Y
Q604	A6317440	Transistor, 2SC1815-Y
Q610B	23035308	Screw, BTB3X8SZN
Q701	A6317440	Transistor, 2SC1815-Y
Q702	A6317440	Transistor, 2SC1815-Y
Q705	A6317440	Transistor, 2SC1815-Y
Q706	A6317440	Transistor, 2SC1815-Y
Q707	A6734590	Transistor, 2SC752GTM-Y
Q709	A6317440	Transistor, 2SC1815-Y
Q710	A6534040	Transistor, 2SA1015-Y
Q711	A6546665	Transistor, 2SA1306-Y
Q712	A6359135	Transistor, 2SC3298A-Y
⚠ Q801	23314480	Transistor (STR), STR-S5141
Q820	A6848520	Transistor, 2SD880-Y
Q863	A6317440	Transistor, 2SC1815-Y
Q865	A6848908	Transistor, 2SD1052A
Q870	A6532853	Transistor, 2SA949-Y
Q902	A6317440	Transistor, 2SC1815-Y

Location No.	Part No.	Description
Q903	A6317440	Transistor, 2SC1815-Y
Q904	A6317440	Transistor, 2SC1815-Y
Q908	A6319400	Transistor, 2SC2068
Q909	A6319400	Transistor, 2SC2068
Q910	A6319400	Transistor, 2SC2068
Q911	A6734590	Transistor, 2SC752GTM-Y
Q912	23114544	Transistor, 2SA1206
Q913	A6509140	Transistor, 2SA562TMY
Q921	A6317440	Transistor, 2SC1815-Y
Q922	A6317440	Transistor, 2SC1815-Y
QA64	A6002020	Transistor, RN1202
QA70	A6317440	Transistor, 2SC1815-Y
QA71	A6534040	Transistor, 2SA1015-Y
QB05	A6317440	Transistor, 2SC1815-Y
QB11	A6534040	Transistor, 2SA1015-Y
QB12	A6534040	Transistor, 2SA1015-Y
QB20	A6002010	Transistor, RN1201
QB21	A6317440	Transistor, 2SC1815-Y
QB80	A6534040	Transistor, 2SA1015-Y
QD01	A6533730	Transistor, 2SA1012-Y
QD02	A6317440	Transistor, 2SC1815-Y
QD03	A6534040	Transistor, 2SA1015-Y
QE05	A6317440	Transistor, 2SC1815-Y
QE06	A6317440	Transistor, 2SC1815-Y
QE70	A6000010	Transistor, RN1001
QG50	A6534040	Transistor, 2SA1015-Y
QG51	A6534040	Transistor, 2SA1015-Y
QG60	A6002030	Transistor, RN1203
QG62	A6002030	Transistor, RN1203
QV01	A6534040	Transistor, 2SA1015-Y
QV02	A6534040	Transistor, 2SA1015-Y
QV03	A6000030	Transistor, RN1003
QV04	A6000030	Transistor, RN1003
QV05	A6534040	Transistor, 2SA1015-Y
QV07	A6534040	Transistor, 2SA1015-Y
QV42	A6534040	Transistor, 2SA1015-Y
QV43	A6317440	Transistor, 2SC1815-Y
QV44	A6317440	Transistor, 2SC1815-Y
QV46	A6317440	Transistor, 2SC1815-Y
QV47	A6317440	Transistor, 2SC1815-Y
QV48	A6317440	Transistor, 2SC1815-Y
QV49	A6317440	Transistor, 2SC1815-Y
QV50	A6000040	Transistor, RN1004
QZ03	A6534040	Transistor, 2SA1015-Y
QZ05	A6534040	Transistor, 2SA1015-Y
QZ06	A6534040	Transistor, 2SA1015-Y
QZ07	A6317440	Transistor, 2SC1815-Y
QZ08	A6317440	Transistor, 2SC1815-Y
QZ09	A6317440	Transistor, 2SC1815-Y
QZ10	A6317440	Transistor, 2SC1815-Y
QZ13	A6534040	Transistor, 2SA1015-Y
QZ14	A6000040	Transistor, RN1004
QZ25	A6534040	Transistor, 2SA1015-Y
D101	A7116625	Diode, Zener, 04AZ6.8Z
D102	A7116405	Diode, Zener, 04AZ5.6X
D104	A7116205	Diode, Zener, 04AZ4.7X
D105	A7116305	Diode, Zener, 04AZ5.1X
D180	A7150258	Diode, 1SS176
D182	A7150258	Diode, 1SS176
D183	A7150258	Diode, 1SS176
D201	A7150258	Diode, 1SS176
D204	A7150258	Diode, 1SS176
D205	A7150258	Diode, 1SS176
D209	A7150258	Diode, 1SS176

Location No.	Part No.	Description
D210	A7150258	Diode, 1SS176
D211	A7150258	Diode, 1SS176
D213	A7150258	Diode, 1SS176
D270	A7150258	Diode, 1SS176
D271	A7150258	Diode, 1SS176
D272	A7150258	Diode, 1SS176
D290	A7150258	Diode, 1SS176
D301	23118977	Diode, ERC01-02FL
D302	A7568250	Diode, 1S1834
D303	A7150258	Diode, 1SS176
D331	A7150258	Diode, 1SS176
D370	A7150258	Diode, 1SS176
D401	A7116625	Diode, Zener, 04AZ6.8Z
D402	A7117715	Diode, Zener, 04AZ20Y
D403	A7150258	Diode, 1SS176
D404	A7150258	Diode, 1SS176
D406	A7978850	Diode, S5295G
D408	A7580656	Diode, 3JH61 (FA2)
D441	23316250	Diode, ERD08M-15
D441B	23035308	Screw, BTB3X8SZN
D442	23316380	Diode, ERD07-15
D443	A7978850	Diode, S5295G
D444	A7118425	Diode, Zener, 04AZ39Z
D445	A7118425	Diode, Zener, 04AZ39Z
D446	A7118425	Diode, Zener, 04AZ39Z
D480	A7568719	Diode, 1S1887
D481	A7116225	Diode, Zener, 04AZ4.7Z
D482	A7978850	Diode, S5295G
D483	A7109272	Diode, Zener, 05Z2.7X
⚠ D484	23115774	Diode, Zener, RD6.2E (4)
D561	A7150258	Diode, 1SS176
D599	A7150258	Diode, 1SS176
D610	A7150258	Diode, 1SS176
D611	A7150258	Diode, 1SS176
D612	A7150258	Diode, 1SS176
D613	A7150258	Diode, 1SS176
D704	A7150258	Diode, 1SS176
D705	A7150258	Diode, 1SS176
D706	A7568475	Diode, TVR-2D
D707	A7568475	Diode, TVR-2D
⚠ D801	23316275	Diode, RBV606 LF-A
D820	A7116415	Diode, Zener, 04AZ5.6Y
D835	A7117005	Diode, Zener, 04AZ10X
D838	A7150258	Diode, 1SS176
D839	A7150258	Diode, 1SS176
D840	23115532	Diode, ERB12-01RK
D841	23115532	Diode, ERB12-01RK
D842	23115532	Diode, ERB12-01RK
D843	23115532	Diode, ERB12-01RK
D860	23316381	Diode, RU1P
D861	A7978850	Diode, S5295G
D862	A7801166	SCR, SF0R3G42-IG5
D863	A7978850	Diode, S5295G
D864	A7568200	Diode, 1S1832
D865	A7568200	Diode, 1S1832
D870	A7110743	Diode, Zener, 05Z33Y
D878	A7118305	Diode, Zener, 04AZ36X
D883	23118943	Diode, ERC20-04
D883B	23035308	Screw, BTB3X8SZN
D884	23118052	Diode, RU4Z
D910	23118642	Diode, Zener, RD2.0ES-B1
D911	23118642	Diode, Zener, RD2.0ES-B1
D912	23118642	Diode, Zener, RD2.0ES-B1
D913	A7116115	Diode, Zener, 04AZ4.3Y

Location No.	Part No.	Description
DA05	23118538	Diode, Zener, RD6.2ES-B2
DA06	23118538	Diode, Zener, RD6.2ES-B2
DA07	23118538	Diode, Zener, RD6.2ES-B2
DA08	23118538	Diode, Zener, RD6.2ES-B2
DA09	23118538	Diode, Zener, RD6.2ES-B2
DA25	23118186	Diode, MA700A
DA36	A7150258	Diode, 1SS176
DA39	A7150258	Diode, 1SS176
DA49	23118538	Diode, Zener, RD6.2ES-B2
DB80	A7116705	Diode, Zener, 04AZ7.5X
DB81	A7150258	Diode, 1SS176
DD01	A7568460	Diode, TVR-1B
DD02	23118943	Diode, ERC20-04
DD03	A7568752	Diode, 1S1887A
DD04	A7150258	Diode, 1SS176
DD07	A7978855	Diode, S5295J
DE30	23115922	Diode, Zener, μPC574J(M)
DE50	A8608780	Diode (LED), TLY153, Yellow
DE70	A7115315	Diode, Zener, 04AZ2.0Z
DE71	A7150258	Diode, 1SS176
DE72	A7150258	Diode, 1SS176
DG50	A8612100	Diode (LED), TLO153, Orange
DG51	A8606430	Diode (LED), TLG153, Green
DG61	A7150258	Diode, 1SS176
DG62	A7150258	Diode, 1SS176
DR81	A7150351	Diode, 1SS178
DV01	A7116915	Diode, Zener, 04AZ9.1Y
DV02	A7116825	Diode, Zener, 04AZ8.2Z
DV03	A7116825	Diode, Zener, 04AZ8.2Z
DV04	A7150258	Diode, 1SS176
DV05	A7116625	Diode, Zener, 04AZ6.8Z
DX01	A7150258	Diode, 1SS176
DZ01	A7116805	Diode, Zener, 04AZ8.2X

MISCELLANEOUS

B111	23995817	Frame, Antenna Terminal
H003	23145310	RF Switch, RSU113X3
H003A	23740989	Nut
⚠ F801	23144945	Fuse, 5A
F801A	23165081	Fuse Holder
K910	23120439	Remote Sensor, IR-9103-K
P003	23161665	Terminal, 4P
P661	23363607	Headphone Jack, 3.5mm
⚠ P801	23176624	Power Cord
PS01	23365337	Jack Phono, 5P
PS02	23365337	Jack Phono, 5P
PS07	23365337	Jack Phono, 5P
PS08	23365337	Jack Phono, 5P
PS42	23365506	Jack S+2P
PS43	23365506	Jack S+2P
PV01	23365337	Jack Phono, 5P
PV41	23365506	Jack S+2P
S201	23145682	Switch, Lever, 1C3P
S669	23145443	Switch, Slide, 4C2P
SA01	23145227	Switch, Push, 1C1P
SA02	23145227	Switch, Push, 1C1P
SA03	23145227	Switch, Push, 1C1P
SA04	23145227	Switch, Push, 1C1P
SA05	23145227	Switch, Push, 1C1P
SA06	23145244	Switch, Push, 1C1Px4
SA09	23145227	Switch, Push, 1C1P
SA12	23145244	Switch, Push, 1C1Px4

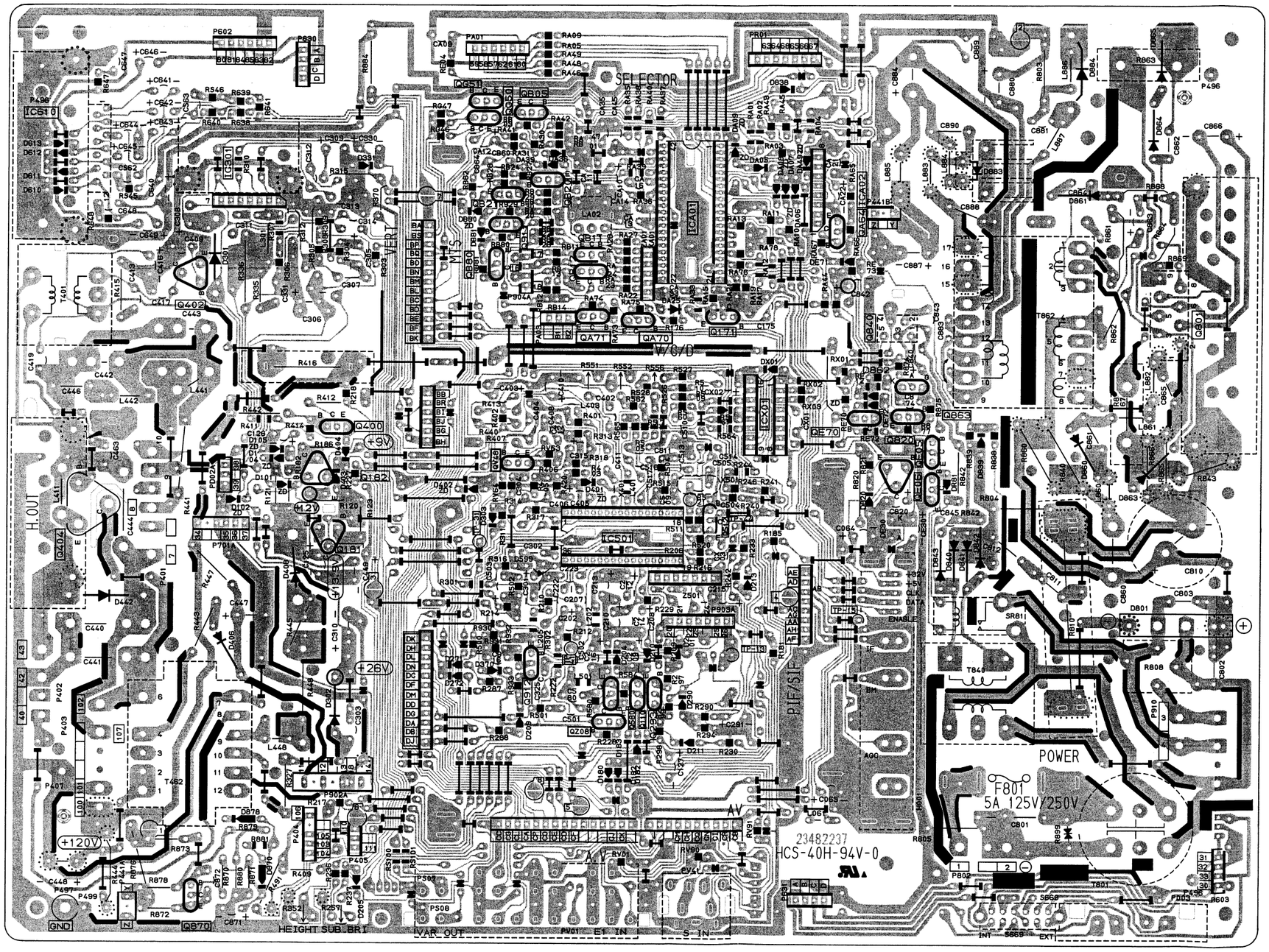
Location No.	Part No.	Description
⚠ SR81	23146916	Power Relay, DG1U-12
⚠ V901A	23902019	Socket, CRT, 10P
W661	23151258	Speaker, SPK-1258, 70x130mm, 8 ohm
W662	23151258	Speaker, SPK-1258, 70x130mm, 8 ohm
X401	23153721	Ceramic Resonator, TCR1023
X501	23153961	Crystal, 3.58MHz
XA01	23153845	Ceramic Resonator, 4MHz, TCR1015
XZ01	23250876	Coil, Delay Line, TRF2081
XZ04	23250876	Coil, Delay Line, TRF2081
Z101	A5615240	PIF SAW Filter, F1802R
Z141	23107976	Ceramic Video Trap, 4.5MHz, TPS4.5MC2
Z501	23134986	Capacitor Block, 270pFx3, 50V
Z601	23107920	Ceramic Filter, 4.5MHz, TCF1014
ZA01	24094834	Capacitor Block, 220pFx4, 50V
ZZ01	23107838	Ceramic Filter, 10.7MHz, TCF1034
PC BOARD ASSEMBLIES		
UA01	23335784	Control Board, PW9215
UV01	23334131	A/V Board, PW6768
M051Z	23335785	Main Board, PW9214 (USA)
M051Z	23335963	Main Board, PW9301 (CANADA)
M071Z	23335786	HVR Board, PW9216-1
M072Z	23335787	CRT Drive Board, PW9216-2
M073Z	23335788	Scan Board, PW9216-3
Y991Z	23330566	PIF and SIF Board, PW9243-1
Y992Z	23330567	MTS Board, PW9243-2
Y993Z	23330568	CCD Board, PW9243-3
PICTURE TUBE		
⚠ V901	A5557339	Picture Tube, A80JTS96X, SVC
TUNER		
⚠ H001	23121639	Tuner, VHF/UHF, EL811LX1 (USA)
⚠ H001	23121641	Tuner, VHF/UHF, EL811L (CANADA)

Location No.	Part No.	Description

THIS PAGE IS
INTENTIONALLY
LEFT BLANK.

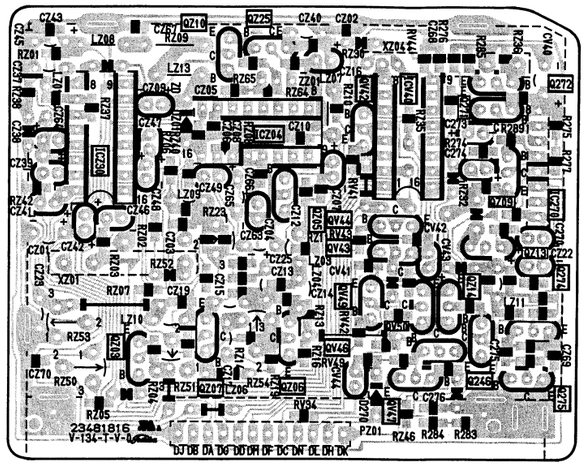
MAIN BOARD PW9214/PW9301

BOTTOM (FOIL) SIDE



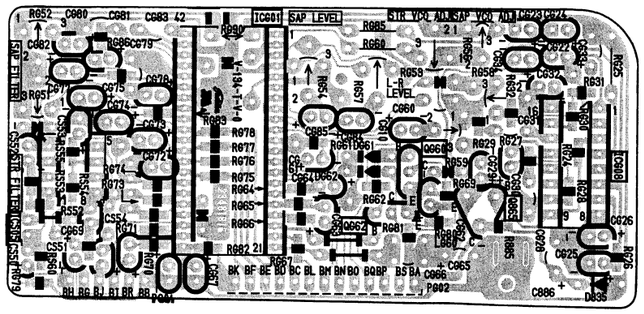
PIF AND SIF BOARD PW9243-1

BOTTOM (FOIL) SIDE



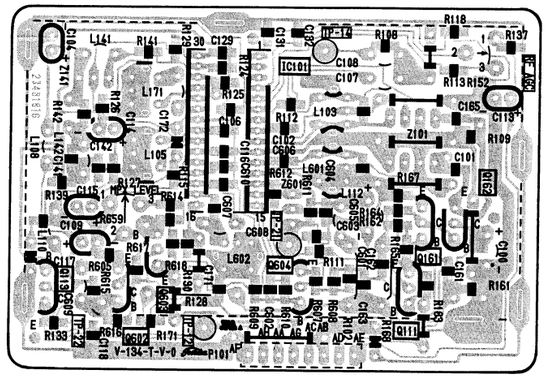
MTS BOARD PW9243-2

BOTTOM (FOIL) SIDE



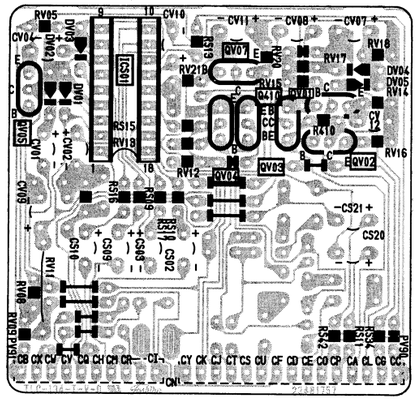
CCD BOARD PW9243-3

BOTTOM (FOIL) SIDE



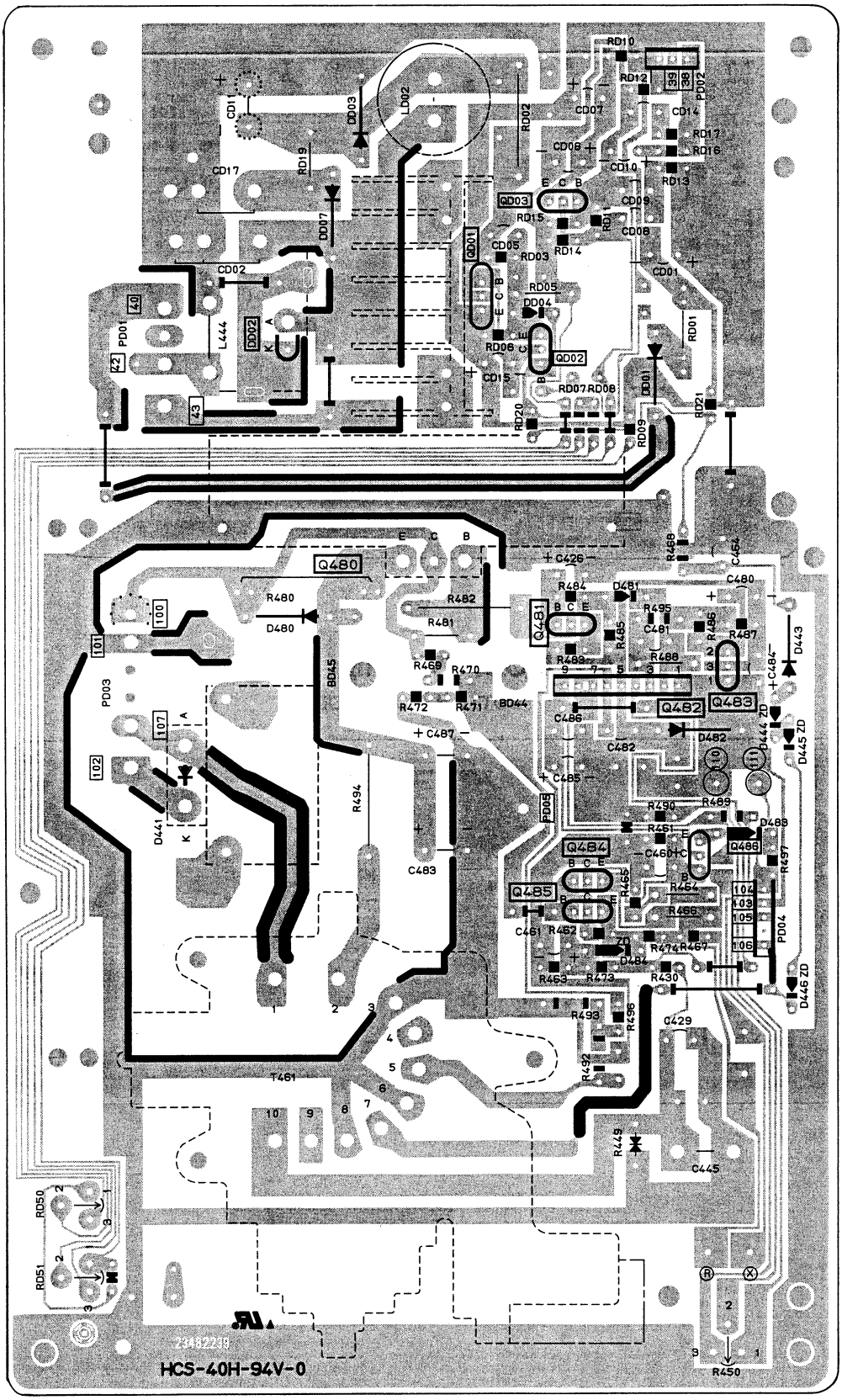
A/V BOARD PW6768

BOTTOM (FOIL) SIDE



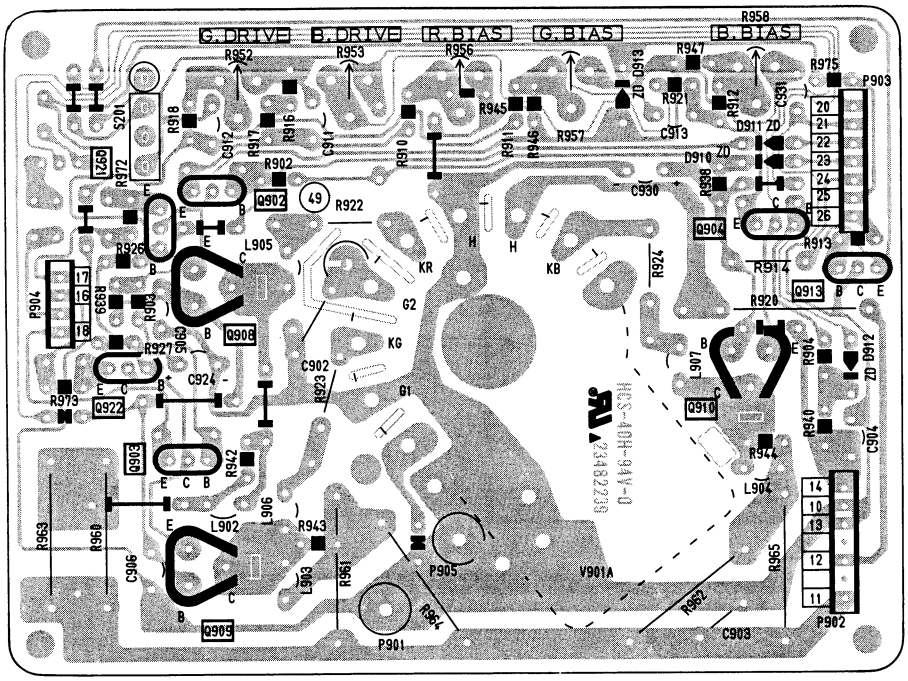
HV REGU. BOARD PW9216-1

BOTTOM (FOIL) SIDE



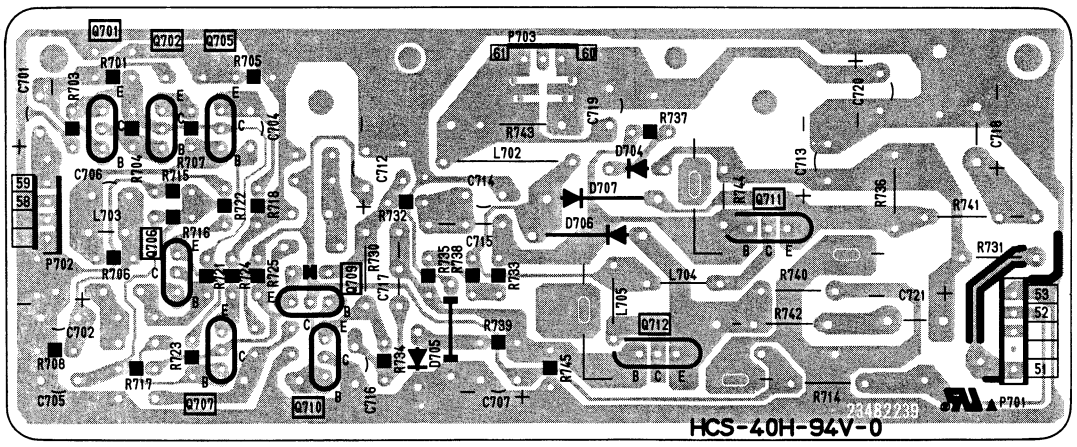
CRT DRIVE BOARD PW9216-2

BOTTOM (FOIL) SIDE



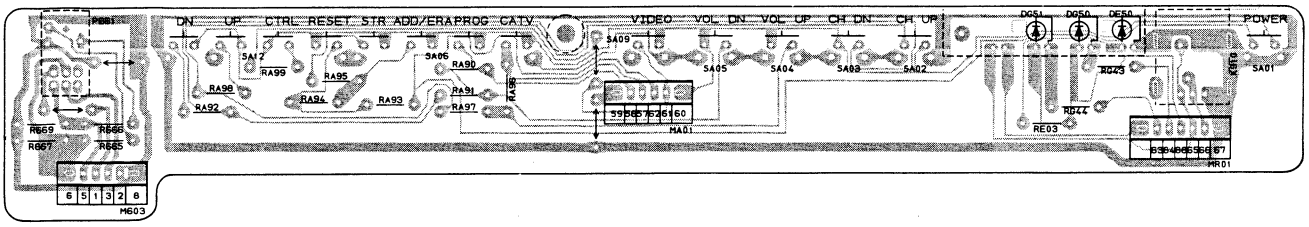
SCAN MOD. BOARD PW9216-3

BOTTOM (FOIL) SIDE



CONTROL BOARD PW9215

BOTTOM (FOIL) SIDE



MEMO

MEMO

MEMO

SCHEMATIC DIAGRAM MODEL : CF3254J Cha
CX34549

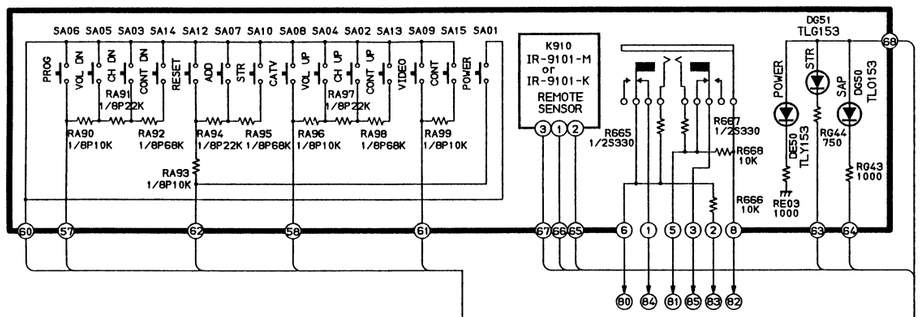
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" , "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

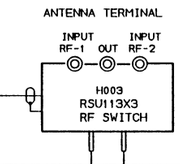
CAUTION: The international hazard symbols in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

NOTE:

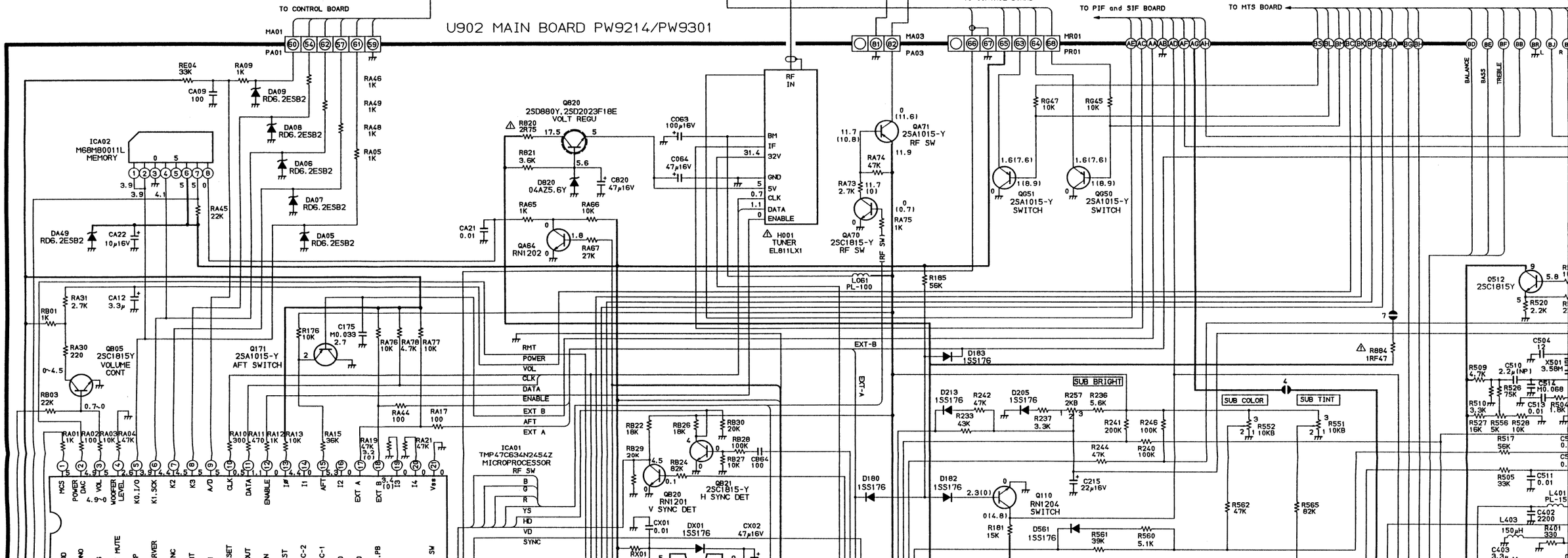
1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsi
   1RF = Fuse resistor of 1 watt 10W = Cement of 10
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the followin
   Electolytic capacitor Mylar capacitor
3. The parts indicated with " ⚠ " have special characteristics, and should be replace

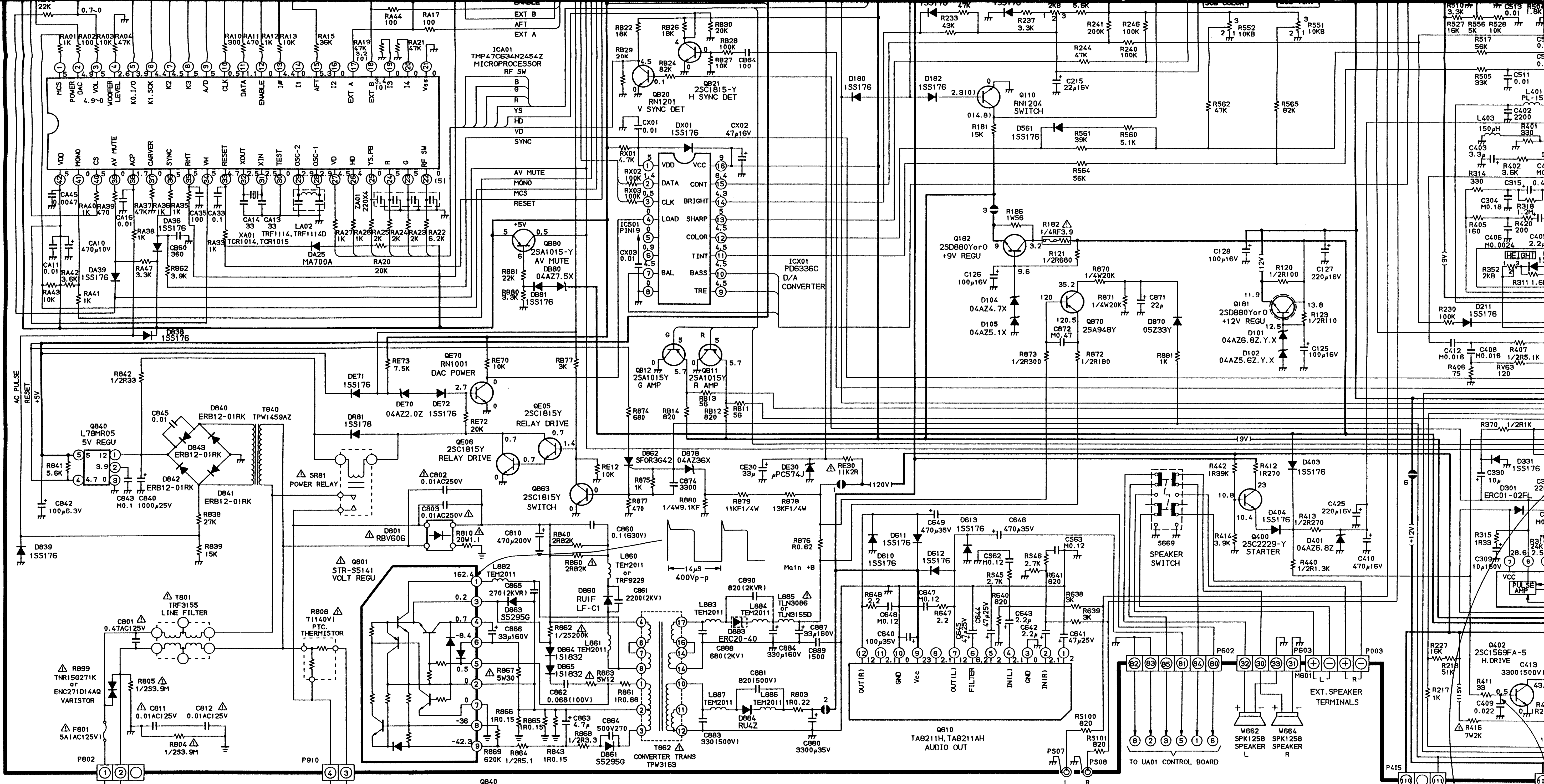
UA01 CONTROL BOARD PW9215

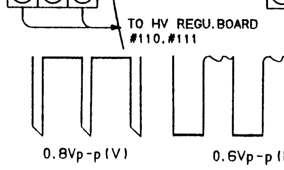


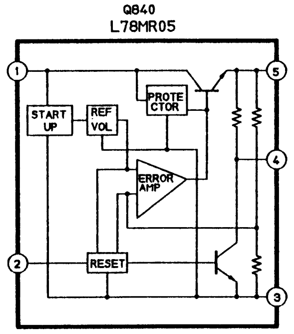


U902 MAIN BOARD PW9214/PW9301




ICA01
TMP47C634N2454Z
MICROPROCESSOR
ICX01
PD6336C
D/A
CONVERTER
Q820
RN1201
V SYNC DET
Q821
2SC1815-Y
H SYNC DET
Q880
2SA1015-Y
AV MUTE
QE70
RN1001
DAC POWER
QE05
2SC1815Y
RELAY DRIVE
QE06
2SC1815Y
RELAY DRIVE
Q863
2SC1815Y
SWITCH
Q812
2SA1015Y
G AMP
Q811
2SA1015Y
R AMP
Q110
RN1204
SWITCH
Q182
2SD880YorO
+9V REGU
Q870
2SA948Y
Q181
2SD880YorO
+12V REGU
Q400
2SC2229-Y
STARTER
Q402
2SC1569FA-5
H.DRIVE
Q840
L78MR05
5V REGU
T840
TPW1459AZ
SR81
POWER RELAY
Q801
STR-S5141
VOLT REGU
T801
TRF3155
LINE FILTER
R808
7(140V)
PTC.
THERMISTOR
R899
TNR15G271K
or
ENC271D14AQ
VARISTOR
F801
5A(AC125V)
P801
POWER CORD
AC120V
60Hz
L901
TSB304AT
DEGAUSSING COIL
T862
CONVERTER TRANS
TPW3163
Q610
TA8211H, TA8211AH
AUDIO OUT
S669
SPEAKER
SWITCH
W662
SPK1258
SPEAKER
L
W664
SPK1258
SPEAKER
R
EXT. SPEAKER
TERMINALS
TO UA01 CONTROL BOARD
(VAR AUDIO)
TO HV REGU. BOARD
#110, #111
14μS
400Vp-p
Main +B





CAUTION

The grounding (⏚ mark) in the schematic diagram is separated from the other circuit ground (⏚ mark) to prevent possible shock hazard.

⏚ : Live ground ⏚ : Isolated ground

M MODEL : CF3254J Chassis No.TAC8960 (1/2)
CX34549 TAC8965

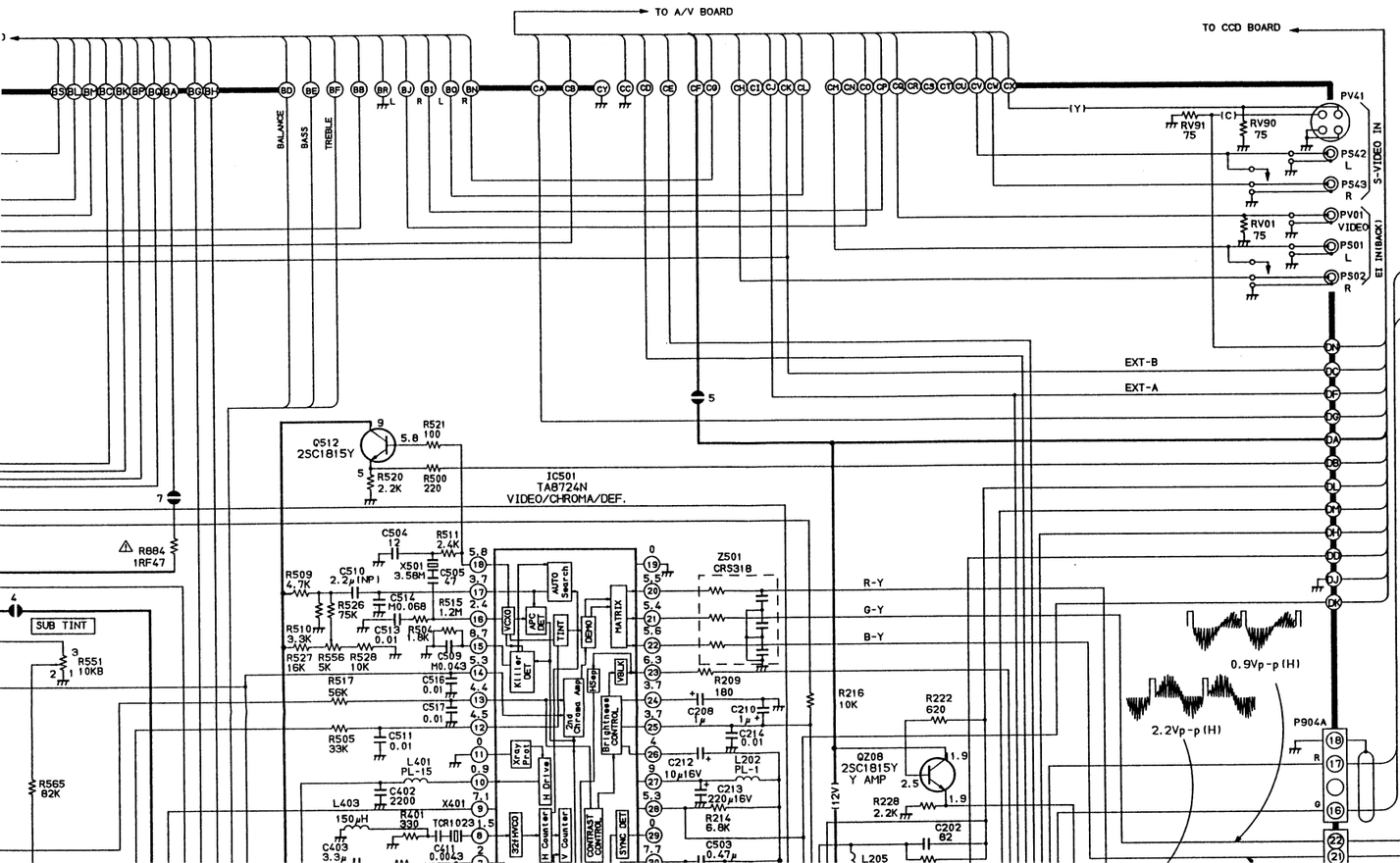
ım [K = 1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon
: noted as the following marks.
ide of 1/2 watt 1/2S = Carbon compsistion of 1/2 watt
watt 10W = Cement of 10 watt
F = ±1%
ı schematic, all capacitor values less than 1 are expressed in μF, and the values

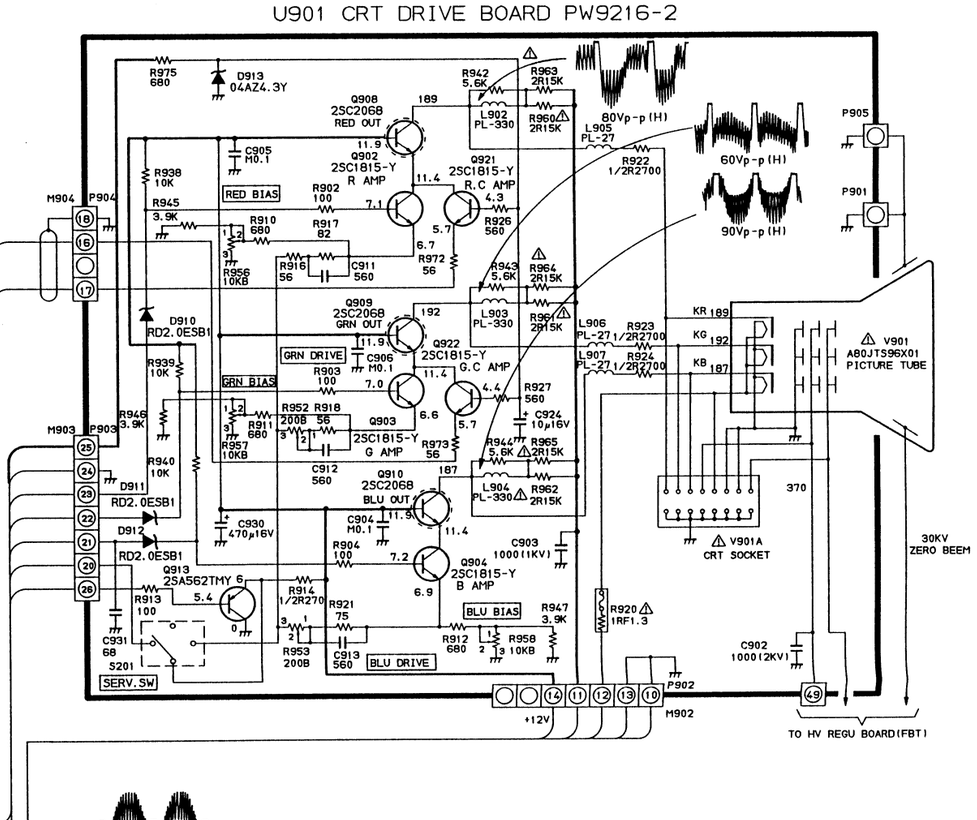
c 50V, unless otherwise noted as the following marks.
pacitor Ⓜ Mylar capacitor
special characteristics, and should be replaced with identical parts only.

4. Voltages read with DIGITAL MULTI-METER from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage 120 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.
7. Solder links 1 to 7 can be used to measure +B current and to check the power circuit independently of the other circuit.

DIFFERENCES BETWEEN USA AND CANADA MODELS

DIFFERENT PARTS \ MODELS		USA	CANADA
		CF3254J	CX34549
MAIN BOARD	PW NO.	PW9214	PW9301
	DA03	1SS176	Open
	C878, C879	Delete	Add
	L871	Short	Add
	H001	EL811LX1	EL811L





U701 SCAN MODULATOR BOARD PW9216-3

SUB TINT

EXT. SPEAKER TERMINALS

TO HV REGU. BOARD PD02

TO HV REGU.BOARD PD03

TO HV REGU.BOARD PD05

TO HV REGU.BOARD PD01

TO HV REGU.BOARD #110.#111

TO HV REGU.BOARD PD04

TO HV REGU BOARD(FBT)

0.8Vp-p(V)

0.6Vp-p(H)

75Vp-p(H)

200Vp-p(H)

1KVp-p(H)

54Vp-p(V)

0.9Vp-p(H)

2.2Vp-p(H)

2.5Vp-p(H)

3.5Vp-p(H)

SCHEMATIC DIAGRAM MODEL : CF3254J Ch
CX34549

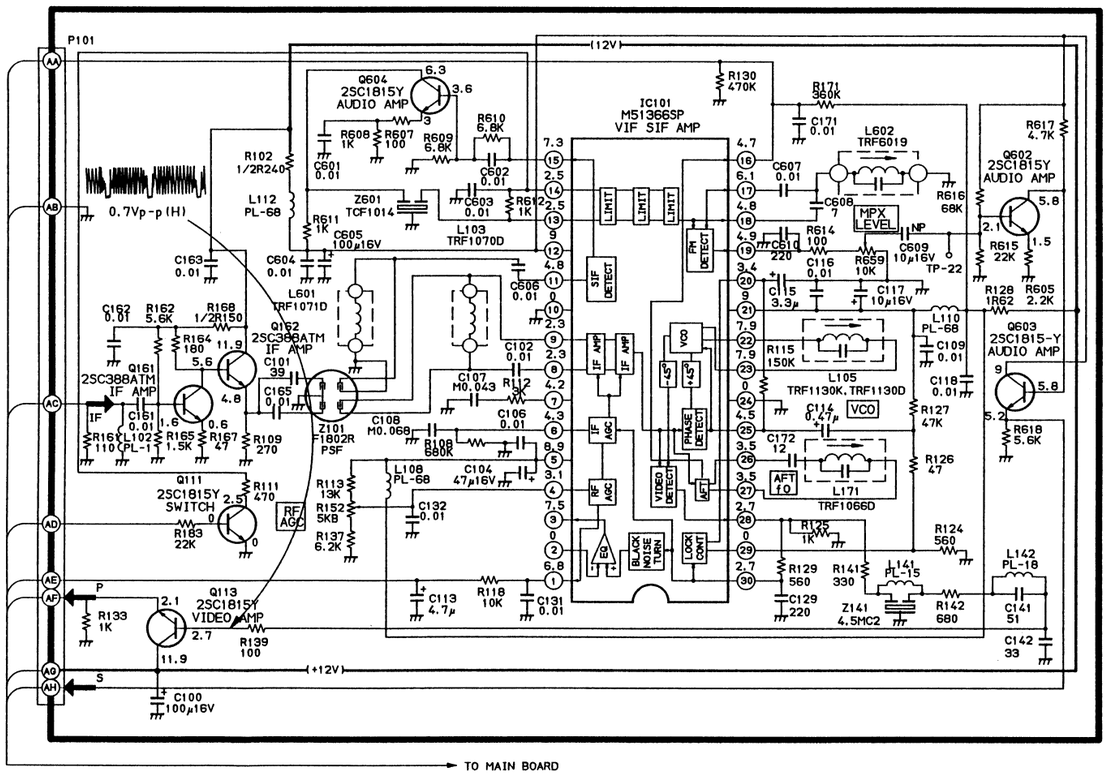
WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" , "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE 2 OF THIS MANUAL.

CAUTION: The international hazard symbols in the schematic diagram and the parts list designate components which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. The mounting position of replacements is to be identical with originals. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2. Do not degrade the safety of the receiver through improper servicing.

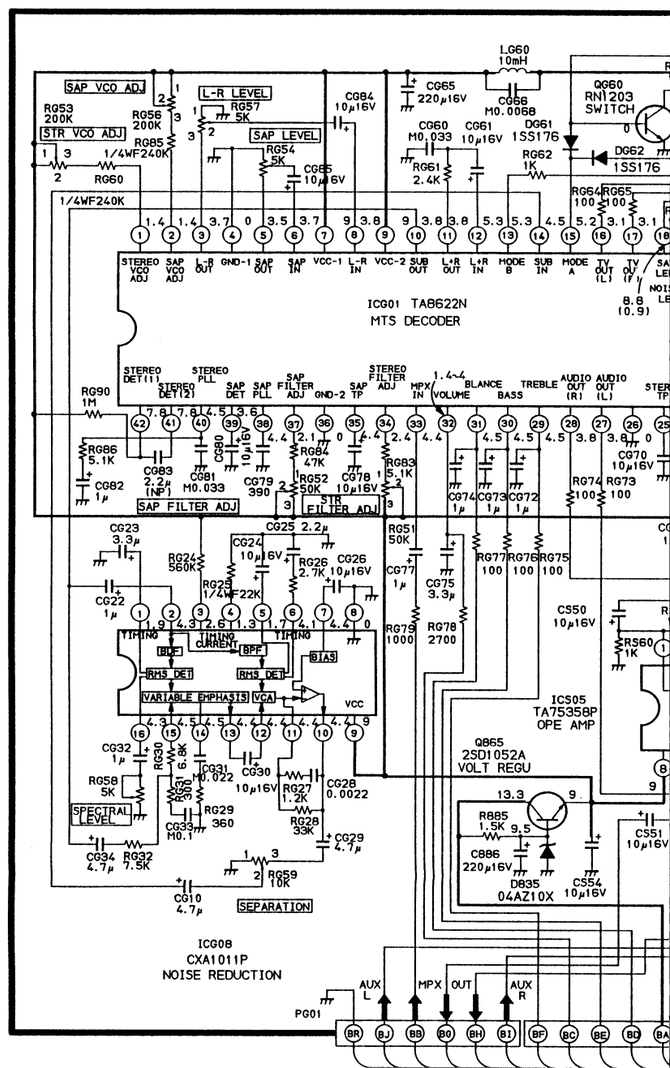
NOTE:

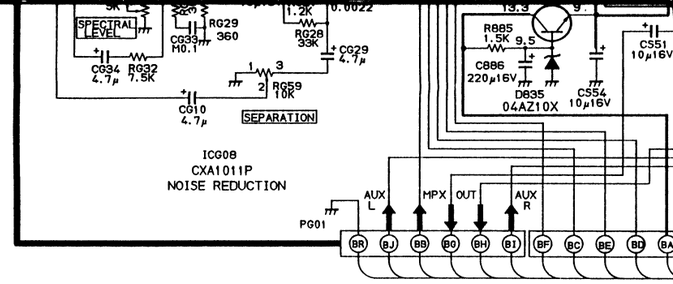
1. RESISTOR Resistance is shown in ohm [K = 1.000, M = 1.000.000]. All resistors are resistor, unless otherwise noted as the following marks.
   1/2R = Metal or Metal oxide of 1/2 watt 1/2S = Carbon compsi
   1RF = Fuse resistor of 1 watt 10W = Cement of 10
   K = ±10% G = ±2% F = ±1%
2. CAPACITOR Unless otherwise noted in schematic, all capacitor values less than 1 are more than 1 in pF.
   All capacitors are ceramic 50V, unless otherwise noted as the followin
   —|+|— Electolytic capacitor —|M|— Mylar capacitor
3. The parts indicated with " ⚠ " have special characteristics, and should be replace

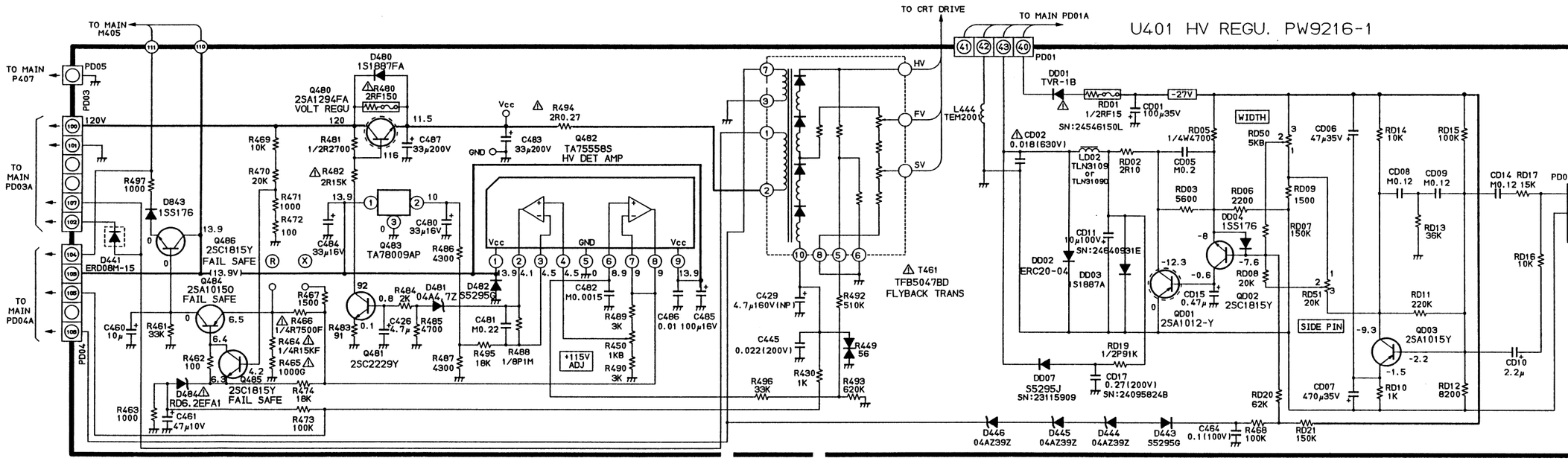
U102 PIF and SIF BOARD PW9243-1



UG01 MTS BOARD PW9243-2




SPECTRAL LEVEL
C934 4.7μ
R932 7.5K
C933 M0.1
R929 360
1.2K
R928 33K
0.0022
C929 4.7μ
R859 10K
C910 4.7μ
SEPARATION
13.3
9.5
R885 1.5K
C886 220μ16V
D835 04AZ10X
C554 10μ16V
C551 10μ16V
ICG08
CXA1011P
NOISE REDUCTION
PG01
AUX L
MPX OUT
AUX R
BR
BJ
BB
BG
BH
BI
BF
BC
BE
BD
BA


U401 HV REGU. PW9216-1
TO MAIN M405
TO MAIN P407
TO MAIN PD03A
TO MAIN PD04A
PD05
PD03
PD04
120V
D480 1S1887FA
Q480 2SA1294FA VOLT REGU
R480 2RF150
120
11.5
116
R469 10K
R481 1/2R2700
C487 33μ200V
R470 20K
R482 2R15K
R471 1000
R472 100
C484 33μ16V
R497 1000
D843 1SS176
Q486 2SC1815Y FAIL SAFE
(13.9V)
D441 ERD08M-15
Q484 2SA10150 FAIL SAFE
C460 10μ
R461 33K
R462 100
R463 1000
C461 47μ10V
R467 1500
R466 1/4R7500F
R464 1/4R15KF
R465 1000G
Q485 2SC1815Y FAIL SAFE
R474 18K
R473 100K
D484 RD6.2EFA1
Vcc
R494 2R0.27
GND
C483 33μ200V
Q482 TA75558S HV DET AMP
Q483 TA78009AP
C480 33μ16V
R486 4300
C482 M0.0015
R489 3K
R450 1KB
R490 3K
+115V ADJ
R483 91
0.1
R484 2K
C426 4.7μ
R485 4700
D481 04A4.7Z
D482 S5295G
C481 M0.22
R495 18K
R488 1/8P1M
R487 4300
Q481 2SC2229Y
C486 0.01 100μ16V
C485
TO CRT DRIVE
TO MAIN PD01A
HV
FV
SV
L444 TEM2001
T461 TFB5047BD FLYBACK TRANS
C429 4.7μ160V(NP)
C445 0.022(200V)
R496 33K
R430 1K
R492 510K
R449 56
R493 620K
PD01
DD01 TVR-1B
RD01 1/2RF15
SN:24546150L
CD01 100μ35V
-27V
CD02 0.018(630V)
LD02 TLN3109 or TLN3109C
RD02 2R10
CD05 M0.2
RD05 1/4W4700
WIDTH
RD50 5KB
CD06 47μ35V
RD14 10K
RD15 100K
CD08 M0.12
CD09 M0.12
CD14 RD17 M0.12 15K
RD03 5600
RD06 2200
RD09 1500
RD07 150K
RD13 36K
RD16 10K
CD11 10μ100V
SN:24640931E
DD02 ERC20-04
DD03 S1887A
DD04 1SS176
RD08 20K
QD02 2SC1815Y
-12.3
-0.6
-8
-7.6
CD15 0.47μ
QD01 2SA1012-Y
RD51 20K
SIDE PIN
RD11 220K
QD03 2SA1015Y
-9.3
-2.2
-1.5
CD10 2.2μ
RD19 1/2P91K
DD07 S5295J
SN:23115909
CD17 0.27(200V)
SN:24095824B
CD07 470μ35V
RD10 1K
RD12 8200
RD20 62K
RD21 150K
D446 04AZ39Z
D445 04AZ39Z
D444 04AZ39Z
D443 S5295G
C464 0.1(100V)
R468 100K

Toshiba 1830

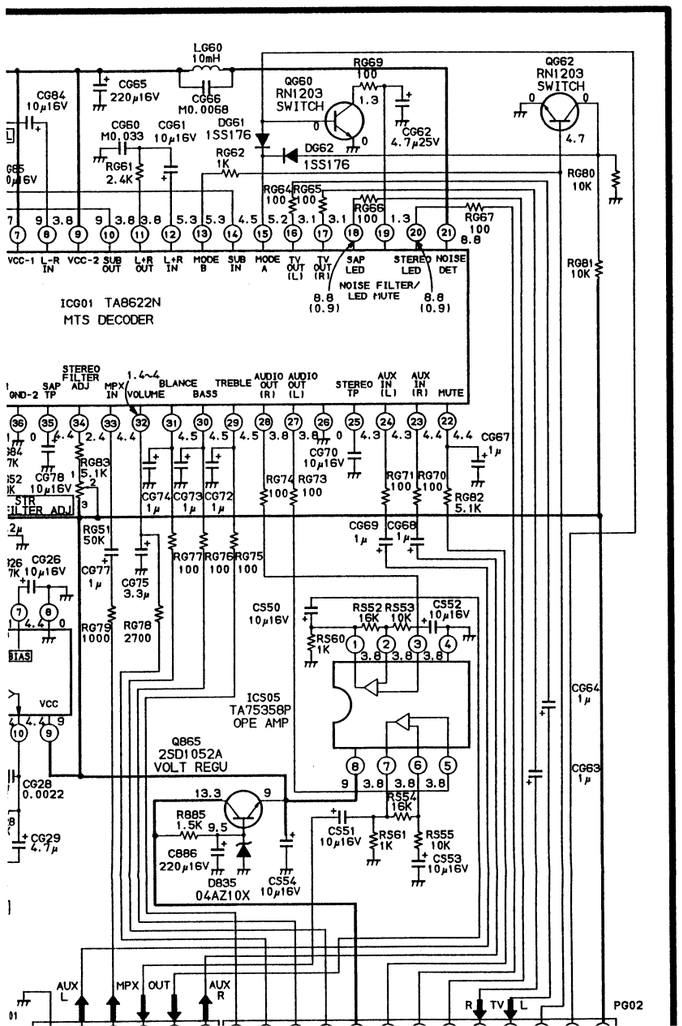
MODEL : CF3254J Chassis No.TAC8960 (2/2)
CX34549 TAC8965

1.000, M = 1.000.000]. All resistors are 1/6W and 5% tolerance carbon as the following marks.
1/2 watt 1/2S = Carbon compsistion of 1/2 watt
10W = Cement of 10 watt
:1%
atic, all capacitor values less than 1 are expressed in μF, and the values

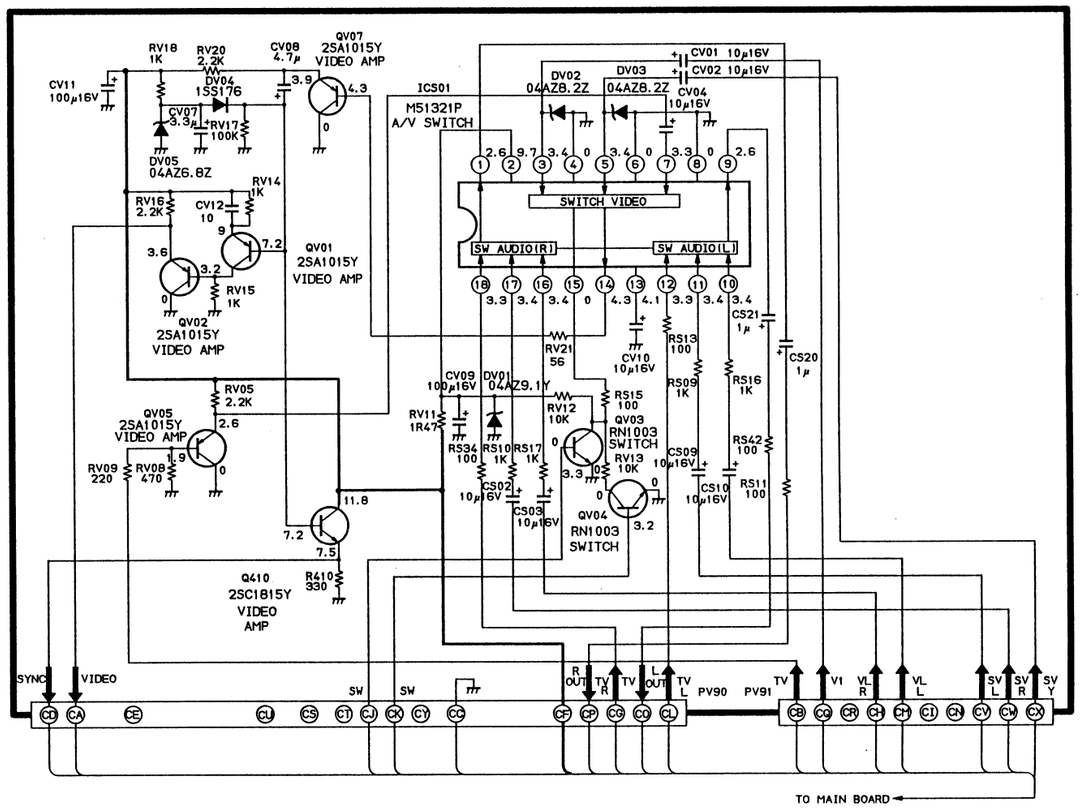
unless otherwise noted as the following marks.
Ⓜ Mylar capacitor
characteristics, and should be replaced with identical parts only.

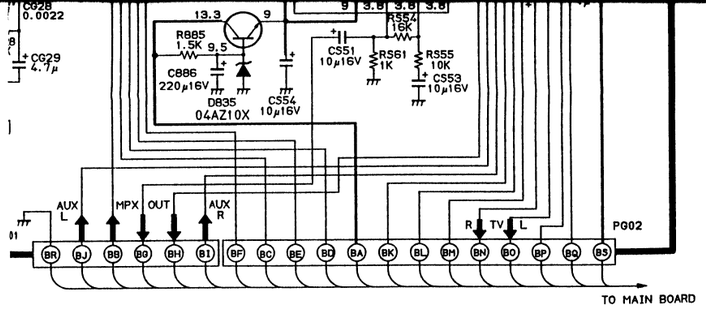
4. Voltages read with DIGITAL MULTI-METER from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage 120 volts.
5. Waveforms are taken receiving color bar signal with enough sensitivity.
6. Voltage reading shown are nominal values and may vary ±20% except H.V.
7. Solder links 1 to 7 can be used to measure +B current and to check the power circuit independently of the other circuit.

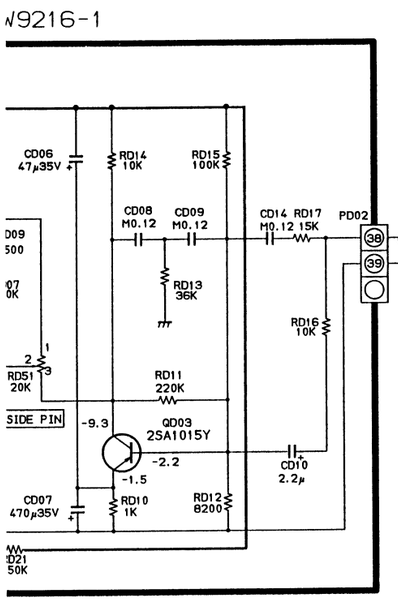
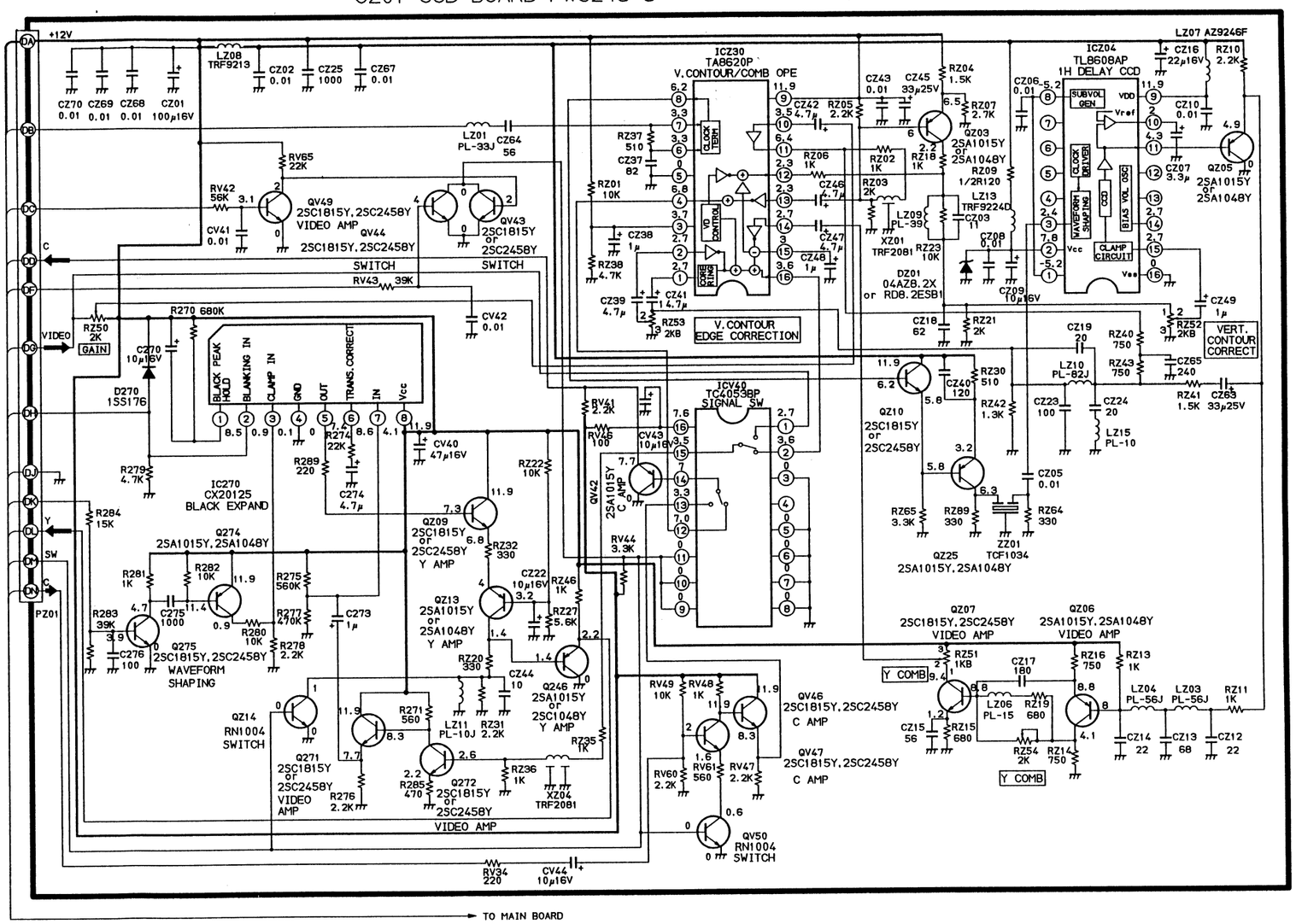
MTS BOARD PW9243-2



US01 A/V BOARD PW6768







UZ01 CCD BOARD PW9243-3